

ALCOHOL USE AS A FUNCTION OF EXPRESSED AND WANTED INTERPERSONAL BEHAVIOR

BY

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A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL OF
THE UNIVERSITY OF FLORIDA
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1981

To my parents, James and Ann May, with deep love and gratitude.

ACKNOWLEDGEMENTS

The completion of this project has involved the contributions of many people. I am deeply grateful to Harry Grater, the chairman of my doctoral committee, for his supervision and support of this project as well as for contributing to my professional development in many ways. I am also indebted to Dave Suchman, who co-chaired my doctoral committee, for his help, friendship, and support. Through studying community psychology with Dave I became interested in the problem of alcohol use.

I would also like to express my appreciation to the other members of my doctoral committee: Gerardo Gonzalez, who is widely recognized in the field of alcohol education, for his conscientious supervision of my study, Jim Morgan, for his helpful suggestions and support, and Bob Ziller, for his helpful input. I'd like to thank Franz Epting for agreeing to sit in at my final oral examination. I'm also grateful to Cheryl Phillips for sealing 600 envelopes, which is typical of the patience and helpfulness she has shown over the years.

I am very grateful to Barbara Thomas for her friendship and help and to Jim Calliote and Patrice Slusser for their friendship and for proofreading the manuscript. I would especially like to thank Richard Skinner of the ODU Computer Lab, who contributed many hours of statistical and computer consultation and who helped me to keep my sense of humor.

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Abstract of Dissertation Presented to the Graduate Council
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

ALCOHOL USE AS A FUNCTION OF EXPRESSED AND WANTED INTERPERSONAL BEHAVIOR

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August, 1981

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The importance of an increased understanding of normal alcohol use for alcohol education efforts was considered. It was suggested that drinking behavior could be usefully conceptualized as interpersonal behavior. It was further asserted that facilitative and problematic patterns of alcohol use are best understood in the context of an individual's interpersonal needs and his or her available means of satisfying those needs. The purpose of this study was to test hypotheses based on this schema.

An instrument consisting of demographic items, a measure of alcohol consumption, a measure of drinking outcomes, and a rating of satisfaction with alcohol use was piloted on an introductory psychology class ($n = 209$) to establish reliability and validity. The latter three measures became the dependent variables in the hypothesis-testing study.

The independent measures in the hypothesis-testing study were scores on the Fundamental Interpersonal Relations Orientation -- Behavior (FIRO-B), a measure of expressed and wanted interpersonal behavior. The first hypothesis was that individuals reporting high levels of interpersonal need would report significantly higher levels of alcohol consumption than individuals with low levels of interpersonal need. Other hypotheses examined the relationship between the dependent measures and high and low levels of expressed and wanted interpersonal behavior. It was hypothesized that individuals with low scores on both dimensions would be infrequent drinkers and experience only positive outcomes, that individuals high on both dimensions would be frequent, facilitative drinkers, and that individuals with high levels of wanted behavior and low levels of expressed behavior would be problem drinkers.

The revised pilot questionnaire along with the FIRO-B was mailed to a random sample of 560 college juniors and seniors. Forty-four percent were returned.

Results were consistent with the first and second hypotheses. The third and fourth hypotheses were not supported. In general, alcohol use was significantly related to the inclusion dimension of interpersonal behavior but not to the control or affection dimensions.

It was concluded that the relationship between alcohol use and interpersonal variables is a complex and fruitful area of investigation. Implications of results, directions for future research, and the salience of healthy alcohol use for college student development were discussed.

CHAPTER I

INTRODUCTION

The use of alcoholic beverages by human beings is a custom thousands of years old. Alcohol use serves important and varied functions in most societies. Empirical study of this custom is a relatively recent phenomenon. An overview of the vast amount of literature which has been produced in the last fifty years reveals quite strikingly that the focus of this empirical study is on alcoholism and problem drinking.

This focus is quite understandable in view of the tremendous price our society pays for alcohol abuse. According to the National Institute on Alcohol Abuse and Alcoholism:

Eighty-six thousand people die of . . . alcohol every year. . . . In 1973 problem drinkers were responsible for 19,000 highway deaths. . . . Approximately one out of four mental patients is or was an alcoholic. . . . About one-third of the arrests each year for drunkenness. . . . One study found that in sixty percent of all violent homicides the killer had been drinking prior to attacking the victim. . . . (Babow, 1974, p. 424)

With our cultural focus on the pain of alcohol abuse, a reality which is often overlooked is the prevalence of alcohol use which does not involve the dire consequences listed above. Alcohol use has customarily been treated by social scientists within a deviance or social problems framework (Kilty, 1978). And yet the percentage of

the population who use alcohol at least occasionally is estimated to be 68 percent among the general population (Cahalan, Cisin & Crossley, 1969), 77 percent in one large metropolitan area (Room, 1972), and 76 percent in cities of over 500,000 (Mulford, 1964). Of populations who drink, most would be classified as "non-problem" drinkers, i.e., people who drink without experiencing any serious or frequent problems related to their use of alcohol (Cahalan et al., 1969; Chafetz, 1976; Straus & Bacon, 1953). Approximately 10 percent would be classified as alcoholics, i.e., people for whom alcohol use interferes significantly with physical, psychological, or economic development (Pittman & Snyder, 1962). Theoretical formulations of alcohol use, which will be reviewed in the following chapter, tend to be piecemeal and to focus entirely or predominantly on pathological drinking behavior. The present study is directed at the exploration of the full range of drinking behavior.

Rationale for the Study

The study of normal drinking behavior is not only important in its own right, since drinking plays such a significant role in our society, but it also has value in terms of its implications for the prevention of unhealthy, or problem drinking. One of the few positions on which there is consensus in the multidisciplinary field of alcohol studies is that preventive efforts are more likely than remedial ones to be effective in reducing the cost of alcohol abuse. However, much of this preventive/educational effort in the United States has been inspired by the temperance movement (Hanson, 1973) and is aimed either explicitly or implicitly at warning our youth about the evils and dangers of alcohol use.

The efficacy of this approach is predictable. Evaluations of alcohol education efforts are making clear that simply imparting information does not work (Gonzalez, 1978a). Neither does admonishing people not to drink. For example, Straus and Bacon (1953) reported that students who received advice from their church or school to abstain from alcohol were more likely to be drinkers than students who reported receiving no advice at all. A more credible approach to alcohol education is needed.

Many authors have suggested that a major cause of alcohol-related problems in the United States is the emotional conflict and ambivalence which surrounds our use of alcohol (Chafetz, 1970; Plaut, 1967; Ullman, 1958). The implication for preventive efforts is that individuals need clear, positively stated norms if they are to make good decisions about how to drink. The rationale for this position is provided by Mizruchi and Perrucci (1962).

These authors have made a distinction between proscriptive, or "thou shalt not" norms, which direct people to avoid or reject behavior, and prescriptive norms, which direct individuals to act in specific ways. The authors suggest that proscriptive norms are more likely to lead to pathological behavior when violation occurs than prescriptive norms. Hanson (1973) explains:

Prescriptive norms provide clear guidance for behavior and they do so even when they are violated. However, once deviance from proscriptive norms occurs, there are no guidelines for behavior. (p. 20)

Thus, preventive/educational efforts directed mainly at the negative consequences of alcohol use are less likely to be useful as guidelines for individuals who are trying to make decisions about how

to drink. In addition, this type of approach reduces the credibility of the "experts," since people who drink are aware that drinking has positive as well as negative consequences.

There exists a mandate from alcohol education professionals to begin to identify both the positive and negative aspects of various drinking patterns and styles (Filstead, Rossi & Goby, 1975). The present study is directed toward that end.

Purpose of the Study

It will be suggested that drinking behavior is usefully conceptualized as interpersonal behavior, i.e., behavior directed toward the gratification of interpersonal needs. Drinking in the United States is culturally defined as serving primarily a social function. Most alcohol consumption takes place in the company of other people, and the so-called "social facilitation" function of alcohol use is widely sanctioned. Thus, it is asserted that facilitative and problematic patterns of alcohol use are best understood in the context of an individual's interpersonal needs and his or her available means of satisfying those needs. The purpose of this study is to suggest a theoretical framework for examining the full range of drinking behavior, and to test hypotheses about healthy and problem drinking as a function of interpersonal variables.

The study will focus on the drinking behavior of a normal (random) college student sample. The rationale for this choice is that, first, a very large proportion of college students use alcohol. Estimates range from 71 to 96 percent, depending on location and type of school (National Clearinghouse for Alcohol Information, 1976). Secondly,

college students represent an ideal population for preventive/educational efforts. They are accessible for these efforts and the high proportion of alcohol-related problems reported by college students indicates that they do not know how to drink.

CHAPTER II

LITERATURE REVIEW

A review of the literature pertinent to the present study comprises several convergent areas of study: the historical context of alcohol research, studies of normal and healthy drinking behavior, research dealing with the measure of drinking behavior (i.e., how people drink), and research on alcohol use among college students. Major theoretical contexts of alcohol research will also be reviewed, and an alternative conceptualization of alcohol use will be proposed.

The Historical Context of Alcohol Research

A literature review involving alcohol research is best understood in the historical context of cultural attitudes toward alcohol use, for they have greatly influenced the study of drinking behavior. McClelland (1971) writes:

Studies of alcohol have been biased--biased by the prohibition-nurtured conviction that alcohol is a drug with bad effects; biased by the inability of psychologists to produce joy in the laboratory; biased by the American belief that action is real and important, fantasy unreal and unimportant. (p. 40)

The widely held belief that Americans are ambivalent about alcohol use has already been mentioned. Alcohol has been presented as a way to prove masculinity, the key to a great party, a great sex life, and a great social life. At the same time, people are sometimes

anxious, guilty, and secretive about their use of alcohol. Alcohol-related behaviors are viewed quite inconsistently. For example, being drunk can be seen as funny or proof of masculine prowess in some situations, e.g., a fraternity party, and as despicable under other circumstances, e.g., when an alcoholic goes "off the wagon." The point is that drinking in this society is loaded with moral and emotional connotations.

Many authors trace the problem back to Prohibition, when drinking was prevalent but illegal. According to Ullman (1958), since that time drinking has never been adequately integrated into American culture. The idea has persisted that alcohol is inherently an evil agent and much legislative effort to deal with the problem has taken the form of restricting the availability of alcohol.

This cultural bias regarding alcohol use is reflected in the scientific literature on the subject. While an exhaustive review of alcohol research is beyond the scope of this paper, an overview reveals several trends which are noteworthy. First, as already mentioned, early research in the field was heavily focused on alcoholism. This exclusive focus has begun to be replaced by an effort to understand the full range of alcohol use. In his introduction to American Drinking Practices (Cahalan, Cisin & Crossley, 1969), Bacon noted that much of the research and programming effort to date had been ineffective because of a failure to place alcohol abuse in the next largest phenomenal field, i.e., that of alcohol use. Secondly, while early research efforts were concentrated on the pharmacological properties of the agent alcohol, the trend in recent years has been to look more at the role of psychological and cultural factors in alcohol use

(Vuchinich & Tucker, 1978). This trend represents a clear advance in the effort to understand the complexity of alcohol use.

There is a clear bias in the alcohol literature to the effect that the less one drinks, the better (Sanford, 1968). Terhune's (1968) book, The Safe Way to Drink, is basically an exposition on the dangers of drinking, the ugliness of alcohol abuse, and techniques for drinking cautiously. Straus and Bacon's (1953) landmark study, College Drinking, evidences this tradition more subtly. The authors asserted that the stereotype of college students as wild and excessive drinkers was largely unfounded and that alcohol-related problems are not necessarily a function of higher frequency or quantity of drinking. But they were careful to state:

It should hardly be necessary to add that the education we are referring to does not involve "teaching students to drink". Alcohol does not appear to do anything for youth which cannot be achieved more effectively and with greater social acceptance in other ways. (p. 212)

This latter comment is a value statement rather than an inference which could have been drawn from their data. In point of fact, drinking is a learned behavior, and students do need to be taught how to drink, as most of them exercise this option. There is a great deal of social acceptance, not to mention subcultural pressure, for student drinking, and drinking students need a greater understanding of what alcohol use can and cannot do.

Cahalan et al. (1969) found that in spite of the fact that a majority of Americans use alcohol, over 75 percent of their survey sample stated that "drinking does more harm than good." Thirty-five percent could think of nothing good to say about drinking. The authors also noted that individuals whose attitudes toward alcohol

use were somewhat positive were more likely to acknowledge the negative aspects of alcohol use than respondents with negative attitudes were to acknowledge the positive aspects. This finding is consistent with Allardt, Markkanen & Takala's (1957) study, which was done in Finland. The author found that negative attitudes towards drinking were held more strongly than positive attitudes.

Another area of research which reflects this negative bias is that dealing with the effects of alcohol use. Suffice it to note that studies in this area have focused either primarily or exclusively on adverse effects of alcohol use (Fillmore, 1974; Gonzalez, 1978; Jessor, Carman & Grossman, 1966; McKillup & Taylor, 1979; Orford, Waller & Peto, 1974; Straus & Bacon, 1953).

In the light of the historical context of alcohol research, it is not difficult to understand the absence of clearer positive norms for drinking behavior. Fallding (1964), who formulated a typology for the functions of alcohol in a society, suggested that the collective American drinking problem is not due to the quantities Americans drink but to the way Americans drink. He believes that efforts to deal with the problem should be directed at establishing meaningful drinking practices.

The next section of the review will address the literature on normal and healthy drinking practices.

Research on Normal and Healthy Drinking Behavior

Research directed at the study of normal and healthy drinking is relatively sparse, considering the volume of literature on alcohol

use. Research in the broader area of normal drinking will be dealt with first, followed by the literature on healthy or adaptive drinking.

Normal drinking behavior. This concept has been variously defined as 1) the drinking behavior of a random sample of the population (Cahalan et al., 1969; Edwards, Chandler & Hensman, 1972; Jung, 1977), and 2) the drinking behavior of people who have not been labeled problem drinkers (Deardoff, Melges, Hout & Savage, 1975).

Vogel-Sprott (1974) has suggested that there are discernible patterns of drinking quantity and frequency as a function of age, and that normal and problem drinking could be usefully defined in terms of these age norms.

A common term which is used interchangeably with normal drinking is "social drinking," due to the consensus that many of the norms for acceptable drinking behavior have to do with social celebrations, increasing conviviality, etc. This consensus should not be construed to mean that drinking done in the company of others is necessarily healthy and drinking done alone is unhealthy.

There have been two seminal studies on normal drinking behavior which are widely cited in the literature. The first is the previously cited survey study, Drinking in College (Straus & Bacon, 1953). The authors first described the controversy surrounding drinking in the United States and the problems inherent in formulating social policy in the absence of facts. Their study represented a preliminary effort to gather such facts about college drinking. Numerous references were cited which illustrated the general alarm about the wantonness with which college students were alleged to use alcohol.

Questionnaire data from over 15,000 students were compiled. The students were asked about demographic variables, parental drinking practices, quantity and frequency of drinking, setting where drinking took place, attitudes about drinking, complications resulting from drinking, and signs of problem drinking.

Five major conclusions will be summarized. 1) The use of alcoholic beverages is best understood as a social custom which is a function of such factors as age, sex, religious affiliation, ethnic identification, and socioeconomic level. It is emphasized that these sociocultural parameters define to a large extent the range of an individual's drinking behavior. The data were interpreted in the context of this major premise. 2) Most students drink moderately, giving the lie to the "wild and crazy" stereotype alluded to earlier. 3) There is a high degree of variation in the drinking practices of college students. 4) There exists a fair, and in this case unexpected, consistency between attitudes about drinking and drinking practices. 5) Many students associate drinking with higher levels of sexual activity. It is easy to see how this finding might be construed as either positive or negative by different segments of the population. This study represents a respectable preliminary effort in the study of normal drinking behavior.

The second major study in this area is the gargantuan sociological survey by Cahalan, Cisin and Crossley (1969, American Drinking Practices (ADP)). The investigators conducted interviews with a sample of 2,746 individuals, drawn from a random sample of U.S. residents aged 21 or older. The rationale for the study was similar to that of Straus and Bacon (1953), i.e., that drinking

problems are best dealt with in the context of an understanding of all users of alcoholic beverages. The authors conducted a demographic analysis of American drinking practices. It is made clear at the outset that the study is intended to be descriptive and is of a hypothesis-generating rather than a hypothesis-testing nature.

The interviews were focused on eight groups of variables: 1) amount of drinking by age, sex, socioeconomic status, and other demographic variables, 2) choice of beverage (i.e., beer, wine, or spirits), 3) circumstances related to drinking, such as setting and usual recreational activities, 4) retrospective reports of changes in drinking patterns, 5) effects of drinking and problems related to drinking, 6) opinions about drinking, and 8) a comparison of "escape" and "social" drinkers. The amount of data collected in this study is awesome. The authors were able to draw some very broad inferences and outline directions for future research.

It will be noted that this study resembles Straus and Bacon's survey in terms of rationale, the variables investigated, and theoretical perspective. It differs from this earlier study in that the sample is much more representative of the general population and the methodology is more sophisticated.

The following summary of American Drinking Practices reports a representative rather than an exhaustive list of findings. First, the authors conclude, whether or not a person drinks at all is primarily a sociological variable, i.e., a function of age, sex, religious and ethnic identification, educational level and socioeconomic status (SES). The authors noted in particular the differences in drinking attitudes and patterns between high and low SES

respondents and inferred that alcohol use serves quite different functions in these two groups. They go on to suggest that individual differences in drinking patterns can be usefully conceptualized in terms of psychological variables, for example, in the case of this study, measures of alienation and neuroticism.

Survey results also indicate that there exists a high degree of variability in drinking patterns over time. These patterns have been elaborated on by other research (Cahalan, 1969; Fillmore, 1974; Vogel-Sprott, 1974). In general, the trend is for drinking to become more frequent and to decrease in average quantity per sitting over time.

Other major contributions of the ADP survey include: 1) information regarding the inconsistent and largely negative attitudes of Americans toward drinking, despite the fact that drinking is typical rather than atypical behavior in this country, 2) a methodological advance in the measurement of amount of drinking which includes an index of variability of drinking as well as indices of quantity and frequency, 3) a profile analysis of light drinkers, heavy drinkers, and abstainers indicating that the latter two groups were less satisfied with life in general than the first group, and 4) a distinction between heavy drinkers who cite escape reasons and those who cite social reasons for their drinking. The latter contribution will be detailed in a more appropriate section of the review.

In addition to the two studies described above, two other studies of lesser scope were conducted with the primary purpose of examining normal drinking behavior, one in Finland (Allardt et al., 1957) and the other in a London suburb (Edwards, Chandler & Hensman, 1972).

The purpose of the study by Allardt et al. (1957) was to describe the social norms related to drinking in Finland and to measure the degree of conformity between social norms and drinking behavior. Toward these ends, a sample of 400 residents of Helsinki, Finland, were interviewed concerning their demographic characteristics, drinking habits, and attitudes toward drinking. The author defined this latter variable as tantamount to drinking norms. Using Guttman scaling, the author defined two primary attitudinal dimensions with respect to drinking: the first described an attitude about how to drink ranging from a preference for occasional unrestrained drinking to a preference for restrained regular drinking, and the second dimension involved a range of permissiveness toward drinking. Allardt et al. (1957) concluded that, in general, people behave in conformity with their verbally expressed norms about drinking unless there is a reason for them to deviate, such as peer pressure or a history of alcohol problems in the home. It was also reported that the drinking attitudes of most people in Finland could be characterized as either negative or ambivalent. Descriptions of the methodology and conclusions of the study were vague and somewhat inconsistent, perhaps due in part to the translation.

The second study referred to above involved 928 interviews with residents of a London suburb (Edwards et al., 1972). Data were collected on demographic variables, quantity and frequency of drinking, choice of beverage, parental drinking practices, drinking setting, and the Eysenck Personality Inventory which includes measures of extraversion and neuroticism. Findings on the relationship between drinking and demographic variables were consistent with previous research.

Like other investigators, the authors elaborated on the differences in drinking behavior as a function of SES category. While there is no "typical" drinking pattern in any large sample, upper class respondents reported drinking more frequently and in less quantity relative to lower class drinkers, who reported drinking less frequently and in greater quantity. In terms of the personality measures, men and women in the higher quantity-frequency categories tended to have higher scores on extraversion, while no significant relationship was found between quantity-frequency category and the measure of neuroticism. These results lend support to the widely accepted premise that the function of drinking for most people is primarily one of social facilitation. Further research is needed to clarify the relationship between drinking alcohol and mental health.

In summary, studies of normal drinking behavior are relatively few compared to the total volume of alcohol research and are primarily sociological in nature and focus. The research has been very broad in scope and has focused on drinking behavior as it relates to demographic variables, particularly socioeconomic status. At this point research on normal drinking has been descriptive rather than analytical. The general conclusion seems to be that drinking behavior is a complex phenomenon related to a large number of demographic, psychological and sociological variables.

There is a need for an integration of the data already collected in this area and for a more integrated approach to future studies. Logical directions for future research are 1) the identification of variables which are most useful in describing drinking and which have the most value for preventive/educational efforts, 2) the formulation

and testing of hypotheses about these variables, and 3) the identification of what kinds of drinking behavior are most desirable in terms of maximizing the benefits and minimizing the costs of alcohol use. The next section of this review will elaborate on what is known about adaptive, or healthy drinking behavior.

Adaptive and healthy drinking behavior. Literature on healthy drinking is sparse and largely anecdotal. Four references were located which alluded to the idea that drinking alcohol could have positive functions. McClelland (1971) writes:

The man in the street knows that drinking can be joyous and exhilarating, but the scientist shakes his head and glumly insists that alcohol depresses the central nervous system and disrupts motor coordination. The only positive effect of alcohol, says the scientist, is that it deadens man's aches, pains, and anxieties. (p. 40)

McClelland and his colleagues explored the relationship of drinking to power needs and feelings of masculinity by giving TAT's to fraternity men before and after drinking. They also approached the question by doing a content analysis of folk tales from light drinking and heavy drinking cultures. In both studies it was found that drinking was associated with "power thoughts," and the researchers recommended making a distinction between two types of power, the first a socialized, altruistic power associated with moderate drinking, and the second associated with dominance, aggression, and heavy drinking. They conclude that the association of drinking and power for men is usually benign, and that drinking problems may occur when men experience personal power needs which are not being gratified.

A sociological perspective on the functions and dysfunctions of alcohol use at both the individual and aggregate levels is provided

by Babow (1974). Alcohol in American society provides jobs, profits, and taxes. It also has many destructive consequences already alluded to. Babow cites a list of the positive functions of alcohol for the individual:

The drug is typically a mild and pleasant accompaniment to meals, recreational events, social intercourse, celebrations, and even religious occasions. . . . In small quantities it may enhance sexual pleasure (through a relaxing of inhibition), facilitate business deals, ease social awkwardness, allay tension and anxiety, increase confidence and consequently accomplishment, and punctuate the significance of otherwise drab events. (p. 423)

Babow cites some myths which are dysfunctional in terms of alcoholism control and reiterates the need for preventive interventions which take into account both the functions and the dysfunctions of alcohol use.

Morris Chafetz (1976), director of the National Institute on Alcohol Abuse and Alcoholism, has written a book for the general public entitled Why Drinking Can Be Good for You. Taking a rather paternal approach, Chafetz describes the seldom-acknowledged benefits of drinking and provides information about alcohol, alcoholics, and his views about the best way to drink. These views are: drink three or fewer drinks per day in a relaxed setting, slowly, with other people, and when feeling good.

Aside from this anecdotal literature, the major empirical work related to nonpathological drinking behavior is a body of literature on the effects of alcohol use. It will be noted that a certain circularity exists in this literature, i.e., the effects of alcohol use are often invoked as explanations of its cause.

Straus and Bacon (1953) explored the effects of alcohol use in a very general way. Students were asked how many times they had ever been high, tight, or drunk. (These three categories were defined as referring to increasing levels of alcohol consumption and socially unacceptable behavior.) It was found that only a small proportion of students had experienced advanced degrees of effect from alcohol use, and those who had had done so infrequently. Over half of the students reported seeing a relationship between drinking and various levels of sexual activity.

Kalin, McClelland, and Kahn (1965) explored the effects of moderate alcohol intake on fantasy using the TAT responses of college males. Their results indicated no change in fantasies after one drink, and an increase in themes involving the meaning of life after two drinks. After 3-4 drinks, meaning of life and physical aggression themes were noted; after 5-6 drinks, sexual themes; and after 7 drinks, themes involving aggression-restraint, fear, and time concern. These results coincide fairly well with the stages of intoxication described in the clinical literature.

This shift in fantasy was not replicated in a similar investigation by Kastle (1969). His study involved a number of measures on 16 medical students under four conditions of alcohol dosage. Kastle reported decreased efficiency on tasks involving logical thinking and problem-solving with increased doses, and an increase in reported happiness and number of associations to common words. These latter two studies provided some evidence for the consciousness-altering function of alcohol described by Blum (1970).

Two other studies failed to find an association between alcohol ingestion and increased pleasure. The first (Nash, 1962) involved a laboratory setting where subjects had to perform mental tasks, and the second (Frankenhauser, Myrsten, and Jarpe, 1962) took place in a hospital where alcohol was administered intravenously. These results attest to the importance of setting as a factor in the effects subjects experience from alcohol ingestion.

Aside from increasing positive affect, two of the more widely held hypotheses about the effects of alcohol are that it reduces depression and anxiety. Williams (1966) was interested in these hypotheses with reference to social drinkers. Ninety-one male college students completed a questionnaire alleged to measure problem drinking, or proneness to alcoholism. Then adjective checklists measuring anxiety and depression were given to subjects before a party where alcohol was consumed, after two drinks, and at the end of the party. It was found that the index of problem drinking was positively related to the amount of alcohol consumed and to preparty anxiety and depression. Levels of anxiety and depression were reported to decrease with low levels of alcohol consumption and to increase with higher levels of consumption. It was suggested that since problem drinkers are by nature more anxious and depressed than other drinkers, they have more appreciation for the alcohol-induced reduction of this negative affect and thus would tend to drink more.

In the ADP study, Cahalan et al. (1969) reported that when asked an open-ended question about the effects of alcohol, two-thirds of the respondents recalled no effects at all. This finding was

probably due in part to the open-ended nature and the wording of the question, i.e., "During the past year, what effects, if any, resulted from your drinking?" In order of frequency, positive effects mentioned were social stimulation, relaxation, pleasant physiological effects, better sleep, medicinal effects, being high, and decreased inhibitions. Negative effects mentioned were hangovers, headaches, nausea, blackouts, aggressiveness, and sadness.

The authors noted several trends in their limited data. Younger drinkers were more likely to report headaches and hangovers than older drinkers--probably due to the fact that younger drinkers tend to drink more at a sitting than older drinkers. A high proportion of heavy drinkers mentioned only unfavorable effects relative to light and moderate drinkers. Escape drinkers were more likely to report both positive and negative effects from drinking than nonescape drinkers.

Russell and Mehrabian (1975) provide a good summary of findings regarding the mediating role of emotions in alcohol use. The authors conceptualized all emotions as describable in terms of three bipolar dimensions: pleasure-displeasure, arousal-nonarousal, and dominance-submissiveness. They concluded from an extensive review of the available literature that moderate doses of alcohol can be pleasure-inducing, particularly in pleasant situations. The relationship between alcohol and arousal is believed to be curvilinear one, with moderate doses of alcohol resulting in the highest levels of arousal. It is further suggested that moderate doses of alcohol increase feelings of dominance, at least among males. The work of McClelland (1971) in this area has already been cited.

It seems evident from this review that alcohol use can in fact be both facilitative and destructive. An integrated and effective approach to alcohol education is best served by a knowledge of both aspects of alcohol use, and the drinking behaviors with which they are associated. The next section of this review will summarize research on dimensions which describe how people drink.

Drinking Pattern

For purposes of this study, the term "drinking pattern" is used to denote all of the variables which are useful in describing how people drink. An overview of this area of alcohol research reveals a bewildering number of criterion variables and a variety of ways of measuring these variables. Researchers have looked at amount of drinking, attitudes toward drinking, motivation for drinking, type of beverage drunk, drinking setting, and activities which accompany drinking. This study will focus on two widely researched components of drinking style which have been shown to be quite useful as descriptors of drinking behavior: quantity and frequency.

Amount of drinking. This is the measure most universally used to describe how people drink. This dimension has been measured in a variety of ways. Straus and Bacon (1953) recognized that neither quantity nor frequency alone was an accurate descriptor of drinking behavior and devised the original quantity-frequency (QF) index. These authors combined five designations for frequency and three for quantity to define five QF categories for men and two for women. Respondents in their study were asked to respond in terms of their usual

drinking behavior and to avoid extreme occasions. Straus and Bacon's classification system did not discriminate well at the heavier ends of the drinking spectrum and did not discriminate well at all for women. A large proportion of subsequent studies have used some adaptation of this index (e.g., Edwards et al., 1972; Mulford & Miller, 1960).

Jessor, Graves, Hanson and Jessor (1968) developed a technique for measuring drinking amount in which respondents were asked how often they usually drank various quantities of beer, wine, and liquor. For each subject the amount of absolute alcohol consumed was calculated, multiplied by the appropriate frequency, added across beverage types, and converted to amount of absolute alcohol consumed per day. This procedure yields a figure which has the advantage of being distributed continuously along a single dimension, and avoids arbitrary labeling of heavy and light drinking. The disadvantage of this procedure is that it fails to reflect the variability of a person's drinking.

Cahalan et al. (1969) developed a QF index which added the dimension of variability of drinking. The ADP study utilized a QFV, or quantity-frequency-variability index. The authors used 11 frequency categories, with many of high frequency, to encourage heavier consumers to report their drinking accurately. A combination of modal and maximal amounts consumed was used to place individuals in one of 11 quantity-variability categories (see Appendix I). Then respondents were placed (somewhat arbitrarily) into one of five QFV categories (see Appendix II).

Based on Knupfer's (1966) findings, which pointed to the usefulness of classifying people according to whether they tended to mass

the volume of alcohol they consumed or space it out, Cahalan et al. (1969) devised a V-V, or volume variability index. This complex measure had all the features of the QFV index, and added the dimension of massed vs. spaced drinking. Their recommendation that this index be used in subsequent studies has not been widely followed. Most studies have used a modified version of the QF index, the QFV index, or an idiosyncratic measure of drinking amount.

Two studies were located which reported a separate analysis of drinking quantity and frequency. Fillmore (1974) conducted a longitudinal study on a portion of the subjects from Straus and Bacon's (1953) research. Fillmore investigated the relationship between drinking quantity, frequency, and indicators of problem drinking in 1953 to the same indices taken 20 years later. Using a path analysis, she found that the most powerful predictor of problem drinking at the follow-up was early problem drinking. It was also reported that quantity accounted for more of the variation in current and future problem drinking than frequency.

Orford, Waller and Peto (1974) devised a grid format for measuring amount of drinking. Subjects were asked to indicate what percentage of "drinking days" (10%, 20%, 30%, etc.) they consumed various numbers of drinks, ranging from one to twenty. An average quantity per drinking day was calculated for each subject and used in a huge factor analysis. Interestingly, both frequency and, to a lesser extent, quantity loaded positively on a component alleged to reflect a mature vs. an immature style of involvement with alcohol.

In summary, there are a variety of ways for measuring amount of drinking. Most studies have used a combined index of quantity and

frequency, and while this seems a valid approach, the latter two studies reviewed indicate that the relationship between these two variables is not a static one. An increase in the standardization of QF measurement would certainly represent an advance in the field, but it should also be recognized that different indices are more or less appropriate for different types of research.

As mentioned earlier, much alcohol research is based on an implicit premise that smaller amounts of alcohol consumption are healthier and more desirable than larger amounts. Empirical support for this premise has been inconsistent. It is suggested that the function may be more curvilinear than linear, i.e., small to moderate doses of alcohol use may be associated with adjustment, while both abstinence and excessive use have been associated with indices of maladjustment (Cahalan et al., 1969).

While quantity-frequency measures are quite useful as measures of drinking behavior, they fail to reflect the complexity of the drinking experience. These indices are best understood in the context of the role of alcohol in the individual's life--what drinking does for and to him or her. Thus the present study will include ratings of satisfaction with drinking and reports of consequences associated with drinking.

The next section of this chapter will review alcohol research which has focused specifically on college students.

Alcohol Use Among College Students

The college student population has been a focus for much of the research on normal alcohol use. The purpose of this review is to

give the reader an overview of this research. Studies which are described in other sections of the chapter have been largely omitted.

The preliminary study on college drinking by Straus and Bacon has been mentioned several times. A large number of subsequent studies have been concerned with the prevalence of student drinking, drinking related complications, and changes in these two variables (Engs, 1977a; Fleming, 1976; Gonzalez, 1978; McKillup and Taylor, 1979).

Hanson (1977) examined trends in drinking attitudes and behaviors over a five year period (1971-1975). He reported that the incidence of drinking and drinking-related complications had remained constant. Engs (1977a) reported a similar finding. Factors which did change from 1971 to 1975 included a decrease in the differential between male and female drinking, a decrease in parental influence on drinking behavior with a concomitant increase in peer influence, and a decrease in the use of alcohol for its sedative effects.

A huge study of the correlates of drinking behavior was done with university students in England (Orford, Waller & Peto, 1974). These authors were concerned with three problems: 1) the structure of the drinking domain, i.e., how many and what type of variables are needed to describe the drinking experience, 2) personality and social influence correlates of drinking, and 3) sex differences in drinking behavior. A 44-page questionnaire was administered to 1323 first year students from three colleges. The data were condensed into 18 variables which dealt with quantity, frequency, motivation for drinking, tolerance of alcohol, effects of alcohol, and attitudes about

drunkenness. The results of a principal-component factor analysis of the data were reported.

Each of the 18 variables loaded positively on a main component which accounted for 40 percent of the variance and which the authors interpreted as reflecting a general involvement with and appreciation of alcoholic beverages. Students who were high on this dimension were more likely to drink, more likely to have positive attitudes about drinking, and more likely to have friends and parents who drank than students who were low on this factor. This factor was positively correlated with a measure of extraversion and a low correlation with a measure of neuroticism was found for women but not for men.

The Orford, Waller and Peto study is one of the few to examine the relationship between drinking and other activities. The authors devised an "adventurous/pleasure-seeking scale," which was composed of items about dating, smoking, driving fast, and breaking the law. All of these variables were significantly correlated with the principal component. The selection of items for this scale reflects an interesting set of assumptions about people who drink.

The authors define the main limitations of this study as those of sampling bias and self-report. To those, one could add the attempt to oversimplify a complex experience using arbitrarily selected variables. The number and complexity of the variables included in the principal-component factor make its relationship to other variables difficult to interpret.

In recent years a large number of alcohol education programs have been established on college campuses. Research on the evaluation of

these programs has begun to appear in the literature. A preliminary question for program evaluation in this area is the nature of the relationship between alcohol knowledge, attitudes, and behavior. Several studies have addressed this question.

Huebner, Slaughter, Goldman, and Caddy (1976) examined the relationship between attitudes toward alcohol use and self-estimated drinking behavior. They found that attitudes about alcohol, particularly permissiveness about drinking, could reliably predict levels of alcohol consumption. (Of course optimal levels of alcohol consumption are still open to question.) Gonzalez (1978), using input from college students and available literature, identified 15 behaviors which represent standards of responsible drinking. He found that students who endorsed these standards were less likely to report experiencing negative consequences from alcohol use. No relationship was found between knowledge about alcohol and endorsement of responsible standards, or between knowledge and the number of negative consequences experienced.

Using the instrument described above, Gonzalez (1978) evaluated the effects of an alcohol education module. He found an increase in the endorsement of responsible behaviors and knowledge about alcohol as a result of the program, but no concomitant decrease in the incidence of drinking-related problems was reported. Engs (1977b) reported a similar finding.

Evaluation of efforts in the field of alcohol education are still in a preliminary stage, but the national commitment of time and money to such projects is promising.

The focus of this review thus far has been to provide a historical context for alcohol use and to review the major research in areas pertinent to the present study. The task remains to describe a theoretical framework for this research. That is the aim of the next section.

Theories of Alcohol Use and Abuse: An Overview

The study of alcohol use and abuse has been called a field in search of a theoretical framework (Vuchinich & Tucker, 1978). While there exists no overarching theory of alcohol use and abuse, a wide variety of theories and hypotheses have been proposed to account for various types of drinking behavior. One is reminded of the overwrought but apt analogy of the six blind men trying to describe an elephant. All of these formulations are partially supported by clinical or empirical evidence, but in general the field is in need of theoretical integration. What follows is a brief review of some of the major formulations of alcohol use and abuse.

Despite the near universality of alcohol use, social scientists have tended to treat the phenomenon within a deviance framework (Kilty, 1978). A common practice has been to either ignore normal alcohol use in theory development or to subsume it under theories of alcoholism. For heuristic purposes, theories regarding alcohol use can be usefully divided into physiological, sociocultural, and psychological explanations, although no one level of analysis is adequate to understand this complex phenomenon.

Physiological Theories

The existence of a genetic vulnerability to alcoholism in some individuals was proposed several decades ago. Early studies comparing the incidence of alcoholism in adopted children of alcoholic and nonalcoholic biological parents did not support this hypothesis. Because of more recent evidence, genetic predisposition as a factor in the etiology of alcoholism has regained popularity in some circles (Coleman, 1976). It is likely that in some individuals, genetic factors do contribute to a predisposition to alcoholism.

Hormonal and metabolic factors in the development of alcoholism are also under investigation, but as yet no conclusive evidence about the role of these factors has been found. Jellinek's (1960) formulation of alcoholism as a progressive disease with loss of control as the defining feature has been highly regarded in the field of alcoholism treatment. One of the major controversies in the field revolves around Jellinek's theory: whether or not it is possible for alcoholics to engage in controlled drinking. The World Health Organization has drawn a distinction between addictive and non-addictive alcoholics. Both types of drinkers are seen as pathological but only the former type is characterized by loss of control (Jellinek, 1962).

Galanter (1976) has proposed a biologically based "adaptive proclivity for altered consciousness." He suggests that alcohol may serve as a release from overactive superego functioning and/or overstimulation. The mind-modifying functions of alcohol and other drugs in some cultures have been described by several authors (Blum, 1970; Mandelbaum, 1965). This function of alcohol is not highly valued in American society.

In sum, it seems likely that physiological factors do play a role in the drinking behavior of a minority of drinkers, but other explanations are needed to explain the full range of drinking behavior.

Sociocultural theories. A great deal has been written about sociocultural factors as explanations of drinking behavior. Two contrasting hypotheses have been identified which have direct bearing on alcohol abuse prevention strategies: the inoculation, or sociocultural hypothesis and the constant proportion, or distribution hypothesis (Ewing & Rouse, 1978).

The inoculation model postulates that abusive drinking has its basis in conflicting social norms and ambivalence, and asserts that if people are introduced to drinking in a healthy, positive context they will be less likely to abuse it. The main evidence for this theory is the fact that heavy drinkers report being introduced to alcohol at a later age than other drinkers and that heavy drinkers were introduced to alcohol less often by parents and relatives than other people. In addition, parents who are abstainers, alcoholics, or who have conflicting attitudes about drinking are more likely to have a child who becomes alcoholic than parents who are moderate drinkers. Preventive programs based in part on inoculation theory have been established on a number of college campuses. Evaluation of these programs remains a difficult task.

The constant proportion model of alcohol consumption asserts that the average per capita alcohol intake in a society always takes the form of a heavily positively skewed curve, i.e., most people are moderate drinkers and a few people are very heavy drinkers. Thus the

larger the per capita consumption, the more alcohol-related problems will ensue. Evidence for this theory is drawn largely from police and hospital statistics and from surveys on consumption rates in different states and countries. Average consumption can be modified by increasing the cost of alcohol, restricting liquor licenses, regulating hours of bar closings, and a variety of other ways. These are traditional prevention strategies. Major criticisms of this hypothesis are that the correlation between restrictive liquor laws and lower rates of cirrhosis deaths does not always hold true, that Prohibition did not work as a prevention strategy, and that the assumption of a constant distribution curve is unfounded (i.e., an increase in per capita consumption might be due to an increase in drinking frequency of light drinkers). Public policy decisions about alcohol use and abuse have traditionally been based on a distribution model despite the weight of evidence for sociocultural and individual factors as determinants of consumption.

A majority of the research on the drinking behavior of non-alcoholic populations has been done within sociological or anthropological frameworks. One of the earliest sociocultural models of drinking behavior was proposed by Bales (1946). He hypothesized that the degree of compulsive (i.e., pathological) drinking in a society is a function of three factors: 1) the degree to which a culture produces inner tension in its members, 2) the attitudes about drinking which are prevalent, and 3) the types of alternative means of satisfying inner tensions which a culture makes available. According to Bales, the second factor is the most important, and he identifies

four general types of attitudes about drinking behavior which may be present: abstinence, drinking as a ritual, convivial drinking, and utilitarian drinking (e.g., for personal or medicinal purposes). The latter type is hypothesized to be more likely to lead to compulsive drinking.

Fallding (1964) has proposed a somewhat different model of drinking behavior at a macroscopic level. He defined civilization as the dignifying of human existence through adornment and outlined a two-faceted problem which societies defined in this way face. One aspect of the problem is to maintain mutual trust in the face of increasing complexity so that identification occurs. The other challenge a society faces is to put its products of surplus, or ornament, to constructive use. Fallding construes alcohol use as an ornament and outlines four basic functions which it can serve in a society. The first is community-symbolic drinking, which occurs within the context of a sense of community and serves to express that sense. The second type is facilitation drinking, which refers to using alcohol to facilitate integration into a society with which one already identifies. This type of drinking is more compulsive than the first and involves more peer pressure. The third functional kind of drinking is assuagement drinking, in which alcohol becomes a substitute for mutual trust and a sense of community. In the absence of meaning, individuals turn to immediate and excessive need gratification - with alcohol, food, sex, possessions, etc. Fallding suggests that much contemporary American and European drinking is of this character. Finally there is the drinking of retaliation or protest. The person, alienated from the system, uses alcohol to make her/himself a passenger on the system.

Fallding asserts that community-symbolic drinking is the only desirable type and that the other three types are indices of social pathology.

Two other long-standing hypotheses regarding alcohol use are the tension reduction and toxic disinhibition hypotheses (Kilty, 1978). The first is simply that people drink to relieve stress and that alcoholics are people who either are more stressed than other people or who handle it less well. Evidence for this hypothesis is based on the correlation between degree of urbanization and rates of alcoholism and the fact that alcoholics tend to score higher than normal drinkers on measures of anxiety. Nonsupportive evidence includes the tendency of large doses of alcohol to increase anxiety in most drinkers and the fact that drinking often does not reduce stress at all in alcoholic populations. The need for longitudinal studies to explore these correlations is obvious, and several such studies are in progress.

The toxic inhibition hypothesis, i.e., that alcohol releases inhibitions and therefore leads to socially deviant behaviors, has been increasingly questioned in the last decade. Mandelbaum's (1965) extensive review of ethnological data and MacAndrew and Edgerton's (1969) research emphasize the culturally dictated nature of drinking behavior and drunkenness. The variation they found in drinking patterns and effects among cultures led them to conclude that the pharmacological properties of alcohol play a minor role in the association between drinking and deviant behavior. MacAndrew and Edgerton have suggested that because of the toxic disinhibition "lore" in this culture, alcohol affords people a socially acceptable "time-out."

Sociocultural theories and research do account for much of the variation in drinking behavior. However, they are limited in that they often make an unfounded assumption of homogeneity of populations within a culture and do not account for variations among individuals or situations. Kilty (1978) noted this limitation and attempted to identify types of drinkers in a normal population. Using a sample of 110 residents of a small community in the northeast and 85 graduate students in social work, he factor analyzed a number of variables, including type of situation (at a bar, at work, watching TV, before dinner, and while looking for a date), mood (good, bad, or neither), and drinking alone or with others. Two-thirds of his subjects fell into one of six drinker type categories: drinkers who use alcohol to alter mood, light drinkers who dislike the taste of alcohol, light drinkers who use alcohol as an occasional thirst quencher, male beer drinkers, sophisticated female drinkers, and moderate social drinkers. His results point to the wide variability of normal drinking patterns within small subcultural groups.

Another study by Kilty (1977) has indicated that personal beliefs about alcohol are more important determinants of drinking behavior than social norms, which have already been demonstrated to have a large impact. The area of individual differences as determinants of drinking behavior will be explored next.

Psychological theories. Psychology's treatment of drinking behavior has tended to focus on the pathological.

Bales' model marks the beginning of a widespread tradition of distinguishing "good" from "bad" drinking in terms of personal/social

dimension. Drinking with other people to express social solidarity is called social drinking and is regarded as healthier than drinking for personal reasons (see Appendix III for an elaboration of these categories). Empirical investigations of this personal/social formulation have taken the form of treating personal vs. social motivation for drinking as an independent variable and amount of drinking and/or complications resulting from drinking as dependent variables (Cahalan, Cisin & Crossley, 1969; Jessor, Carman & Grossman, 1966; Mulford & Miller, 1960; Riley, Marden & Lifshitz, 1948).

In a widely cited article dealing with drinking motivation, Mulford and Miller (1960) looked at the impact of an individual's definition of alcohol on his or her drinking behavior. Responses from an open-ended questionnaire regarding respondents' definitions of alcohol were subjected to Guttman scaling techniques. It was found that these responses were in fact amenable to placement on a cumulative scale along a single dimension. This dimension ranged at one end from defining alcohol as a social evil to defining alcohol in terms of its interpersonal functions to defining alcohol as a way of achieving direct personal effects (see Appendix IV). The authors found that placement along the higher end of the scale, i.e., endorsing the personal-effects definitions of alcohol, was associated with higher QF categories. They theorized that since alcohol served a greater number of functions for the personal-effects drinkers, these people would be likely to drink more frequently and in larger quantities.

Mulford and Miller's work with scaling drinking motivation suggests that every drinker is a "social facilitation drinker" and that alcohol serves an additional set of functions for personal effects

drinkers. The hypothesis that "personal-effects" drinkers drink more and have more problems related to drinking has generally been supported. Kilty (1978) claims that most drinkers drink for both types of reasons and questions the assumption that personal reasons for drinking are an indicator of pathology. It would seem that this personal-social formulation could be improved upon by taking into account the relative importance of the various motivations, and, as Bales has suggested, the number of alternatives available to the individual for satisfying the motivational factors which alcohol satisfies.

Jessor, Carman, and Grossman (1966) looked at individual differences in drinking behavior using a social learning approach. In their view, behavior is the outcome of the tendency to maximize expectations of attaining valued goals over time. Choice of a particular behavior, then, is related to the expected efficacy of that behavior and the efficacy of alternative behavior. Focusing on a college population, Jessor et al. (1966) assumed that academic achievement and interpersonal liking are the most valued goals for college students, and that drinking is one learned alternative for dealing with low expectations of achieving these goals. Thus, drinking patterns of college students would be related to their expectations of attaining achievement and affection. This general relationship was examined in a two-phase study. The first part dealt with the relationship of expectations of need satisfaction to amount drunk and number of drinking-related complications. The second part examined the functions attributed to alcohol use by students with high and low expectations of goal attainment.

In the first study, it was hypothesized that students with lower expectations of (affiliation and achievement) need satisfaction would show more recourse to alcohol as a source of satisfaction, and would also experience more drinking-related complications than students with higher expectations of need satisfaction. In a sample of 88 introductory psychology students, the correlations generally supported the hypotheses, although to a lesser extent for men than for women. The data were also analyzed by dividing subjects into high and low expectation groups and comparing their mean scores on the drinking measures. Results of this analysis are shown in Table 1. It can be seen that this analysis is partially supportive of the hypothesis, again, more so for women than for men.

Finding some support for their hypotheses, the authors went on to study more specifically the functions attributed to drinking by college students as they related to amount of drinking and drinking-related complications. Building on previous work by Mulford and Miller (1960) and Fallding (1964), Jessor et al. defined four categories of drinking functions and developed 32 items to represent these categories. The resulting scale is found in Appendix III. The categories were: positive social functions (conviviality), conforming social functions (peer pressure), psychophysiological functions, and personal-effects functions. A sorting of the items by six researchers and a cluster analysis of the items provided evidence for the validity of the scale. Two hypotheses were then tested: 1) College students with lower expectations of need satisfaction would have higher personal-effects scores than other subjects, and 2) students with

Table 1

Mean Scores on Drinking Measures of Subgroups Established on Level of Both Expectation of Achievement (ACH) and Affection (AFF) Scores

	Total QF	Drunken- ness	Drinking- Related Complications
1 (High ACH, High AFF)			
Men (13)	0.71	2.54	2.15
Women (16)	0.23	1.94	1.19
2 (High ACH, Low AFF)			
Men (6)	0.69	2.33	1.50
Women (9)	0.19	1.44	1.11
3 (Low ACH, High AFF)			
Men (6)	0.54	3.50	1.83
Women (9)	0.41	2.67	1.11
4 (Low ACH, Low AFF)			
Men (13)	0.83	3.54	4.00 ^a
Women (16)	0.57 ^b	2.75 ^c	2.81 ^a

^aSignificant mean difference between Group 4 and Groups 1, 2, and 3, at .05 level; t test, one-tail.

^bSignificant mean difference between Group 4 and Groups 1 and 2, at .05 level; t test, one-tail.

^cSignificant mean difference between Group 4 and Group 2, at .05 level, t test, one-tail.

higher personal-effects scores would fall into higher QF categories and experience more problems related to drinking. Data were analyzed using correlations between the drinking measures and both the number and the proportion of functions endorsed within each category. The first hypothesis was supported for women but not for men. In terms of the second hypothesis, it was found that higher personal-effects scores were associated with more drinking-related complications (the correlation did not reach significance for male subjects) but not with higher

QF scores. The authors were somewhat tentative (rightly so) in their interpretation of these results. They found limited support for one interpretation of alcohol use, in this case a deficit-oriented approach. As they noted, a broader approach would involve investigating drinking as a satisfying and meaningful activity in its own right. In fact, if one takes a social learning approach to drinking behavior, the widespread choice of this alternative would seem to attest to its instrumental value in achieving desired goals, as opposed to being an alternative goal or a means of coping with failure. It is interesting to note here the somewhat curvilinear nature of the results in Table 1. Investigations of this type could also be enhanced by looking at a wider variety of needs and by examining the need satisfaction expectations of non-drinkers. Despite the tentative nature of the results of this study, the work of these and other authors clearly suggests that the functions alcohol serves for an individual are important determinants of how healthy or unhealthy his or her use of alcohol is.

In the light of the findings on personal-effects drinking outlined above, it is interesting to note that in a study of alcoholics' motivation for drinking, subjects were much more likely to experience craving in situations where they felt depressed, sad, or worried than when they were feeling successful, happy, and good (Ludwig & Stark, 1974). This "compensation hypothesis"--that individuals and particularly alcoholics drink more in unpleasant situations or when feeling badly--has received inconsistent support in the literature.

Davis, Berenson, Steinglass and Davis (1974) hypothesized that drinking behavior is under the control of its adaptive consequences. That is, drinking behavior is always adaptive when the individual's

needs and ability to meet those needs are considered. The authors elaborated on this hypothesis in the context of clinical experience with an alcoholic population, and cited several case examples to support their view. One was a woman who began to use alcohol as a way of evincing assertive behavior with her child's pediatrician and others. Another involved an alcoholic father who received affective communications from his family when drunk, but not while sober.

This formulation has value in terms of its implications for treating alcoholism, and also suggests a way of distinguishing healthy from unhealthy drinking behavior. Perhaps the compulsive nature of alcoholics' drinking is due to their belief that being drunk is the only alternative for achieving essential adaptive functions, such as feeling powerful or expressing anger. Thus the wider the range of alternatives available to a person for accomplishing the functions which alcohol serves, the more facilitative their drinking behavior will be.

Finally, Sanford (1977) has noted psychology's neglect of non-problem drinking and has made an attempt to explain the full range of drinking behavior in terms of ego functioning. Adopting a psychodynamic view of personality, he suggests that whether drinking is "good" or "bad" depends on whether it is helping a person to accomplish developmental tasks. He proposes a threefold typology of drinking behavior: escapist, facilitative, and integrative. Escapist drinking is that done to avoid negative affect and to gratify needs which have not been admitted to the conscious ego. It is a way of avoiding needs rather than developing the capacity to meet them. Facilitative drinking is similar to the utilitarian type proposed by Bales (1946). Alcohol may be used to increase courage, overcome

shyness, or relax. Drinking appears to help some individuals integrate these functions without impeding personal development. A person may "try on" new behaviors which become part of his or her repertoire. Sanford defines integrative drinking as meaningful drinking, i.e., an individual is aware of and satisfied with whatever alcohol does for him or her.

Drinking as Interpersonal Behavior

Alcohol has often been referred to as an interpersonal, or social drug. It is certainly defined that way in this society. Most alcohol is consumed in the presence of other people, and the "social" uses of alcohol are widely sanctioned. Alcohol's effects on interpersonal behavior have been documented. A number of studies bear out the hypothesis that moderate doses of alcohol result in an increase in affiliation, talkativeness, or feelings of friendliness (e.g., Goldberg, 1966; Jones & Stone, 1970; Kastenbaum, 1965; Mayfield, 1968). It has also been widely hypothesized that alcohol can result in an increase in assertive or aggressive behavior. Research with alcoholics is generally supportive of this hypothesis. The one exception which was noted was a study using a nonalcoholic population (Bennett, Buss & Carpenter, 1969). The correlation between alcohol use and various types of crime is well-established, although causal relationships between these two variables have yet to be established. In a review of this literature, Russell and Mehrabian (1975) suggest that setting and personality variables are primary factors in whether alcohol use results in positive or negative interpersonal behaviors.

To understand drinking as interpersonal behavior, it is necessary to look at a more general theory of interpersonal behavior.

A Theory of Interpersonal Behavior

W. C. Schutz (1960) has developed a formal theory of interpersonal behavior which may be summarized as follows. The domain of interpersonal needs may be summarized by these needs: inclusion, control, and affection. These three constitute a sufficient set of areas of interpersonal behavior for the prediction and explanation of interpersonal phenomena. Schutz cites a number of factor-analytic studies of parent-child relationships which support this formulation. He reviews the work of Freud, Fromm, and Horney, which he interprets as supportive of his basic postulate.

Inclusion refers to the formation of association or relatedness with one or more other people. It is the "in or out" dimension of interpersonal relationships. Control refers to the decision-making relationships between people. It is the "top or bottom" dimension. Affection generally refers to emotional ties between people. It is the "close or far" dimension of interpersonal relationships. Schutz identifies two aspects of each of these areas as important: need and expressed behavior. Expressed behavior refers to overt, observable behavior in a given area. Wanted behavior refers to what a person wants from other people in a given area. Each individual acquires relatively stable orientations in these three areas based on his or her earliest interpersonal relationships, usually with parents.

A developmental sequence is proposed for all relationships, beginning with inclusion issues, followed by control and then

affection issues. Individual development is said to follow an analogous path, and the termination of relationships follows a reverse sequence.

Based on these premises, Schutz states two principles:

Principle of Constancy: When an individual perceives his/her adult position in an interpersonal situation to be similar to his/her own position in his/her parent/child relation, his/her adult behavior positively covaries with his/her childhood behavior toward his parents (or significant others).

Principle of Identification: When he/she perceives his/her adult position in an interpersonal situation to be similar to his/her parent's position in his/her parent/child relation, his/her adult behavior positively covaries with the behavior of his/her parents (or significant others toward him/her when he/she was a child. (paraphrased from Schutz, 1966, p. 197)

Put another way, Schutz emphasizes the interpersonal nature of healthy ego development: people who experience satisfaction and resolution of these need areas as children will have comfortable relationships as adults, and pathological interpersonal behavior results from being thwarted in one or more of these areas during one's early development.

Schutz defines the following terms:

Need. A situation or condition of an individual the non-realization of which leads to undesirable consequences.

Interpersonal need. One that may be satisfied only through the attainment of a satisfactory relation with other people.

Interpersonal need for inclusion. Need to establish and maintain a satisfactory relationship with people with respect to interaction and association.

Interpersonal need for control. Need to establish and maintain a satisfactory relationship with people with respect to control and power.

Interpersonal need for affection. Need to establish and maintain a satisfactory relationship with people with respect to love and affection.

Inclusion behavior. Behavior directed toward the satisfaction of the need for inclusion.

Control behavior. Behavior directed toward the satisfaction of the need for control.

Affection behavior. Behavior directed toward the satisfaction of the need for affection. (pp. 20-21)

Using this theory as a basis, Schutz has developed an instrument which measures interpersonal behavior for use with individuals, dyads and groups: the Fundamental Interpersonal Relations Orientation -- Behavior (FIRO-B). This instrument will be used in the present study and reviewed in the following chapter.

This instrument has proven to be quite useful both as a research and clinical assessment tool. Ryan (1977) provides some general guidelines for interpretation.

Inclusion refers to a general social orientation. A low expressed inclusion score indicates that a person is uncomfortable around people and moves away from them; a high score on this dimension is indicative of a tendency to move toward people.

Low wanted inclusion scores are interpreted as an indication that the individual is careful about who he or she associates with; a high score is indicative of a strong need for acceptance.

The expressed control score is indicative of the extent to which a person engages in controlling behaviors; the wanted score is indicative of the extent to which a person wishes to be controlled by others. It should be noted that for women a high wanted control score

may mean acceptance of a role rather than an actual desire for control by others.

Finally, a low expressed affection score indicates caution about developing close relationships, while a high score indicates an ability and readiness to do this. A low wanted score on this dimension means an individual is careful about with whom relationships are formed, while a high score means that an individual wishes for others to initiate close relationships.

Scores on each of the six dimensions range from 0 to 9, and the more extreme the score, the more extreme the interpretation. The three expressed scores taken together form an index of overall of social activity, while the 3 wanted scores taken together are a measure of a person's overall need for interpersonal contact.

In general, according to Ryan, the greater discrepancy between the expressed and wanted scores in a given area, the higher the probability that a person is experiencing conflict or frustration; Ryan also maintains that affection is the most "important" orientation, in terms of its ability to modify behavior in other areas, followed by control and inclusion.

The FIRO-B has been established as a useful way of evaluating interpersonal behavior. As such it is an ideal instrument for investigating the notion that drinking behavior can be explained as interpersonal behavior.

Purpose of the Study

It has been suggested throughout this chapter that the field of alcohol studies is in need of an integrative theoretical framework

which explains the full range of drinking behavior. The purpose of this study is to test hypotheses based on such a theory. Public policy decisions about alcohol use should be guided by an understanding of patterns of drinking and abstaining which are conducive to the development of the individual and society.

While alcohol is not an inert substance, current evidence suggests that the outcomes of alcohol use are affected by what people need and expect alcohol to do for them. The limited support for the wide variety of hypotheses outlined previously suggests that alcohol does many different things for different people. A meaningful evaluative schema of drinking behavior would take into account the meanings and functions of alcohol for the individual as well as the context of those functions, i.e., the role of alcohol in a person's life. Other important dimensions would be how central or basic are the functions which a person uses alcohol to serve and what alternatives the individual has for alcohol use. As Sanford suggests, whether alcohol use is working to facilitate an individual's development is a crucial consideration.

The work of Schutz, who has formulated a theory of interpersonal behavior, and Sanford, who has applied a similarly grounded theory to drinking behavior, form the bases for the hypotheses which will be tested in this study. It is asserted that drinking can be usefully construed as interpersonal behavior, that is, behavior directed at meeting interpersonal needs. Thus, individuals with high interpersonal need scores are expected to report higher levels of consumption than other drinkers.

Sanford's (1967) formulation of drinking behavior and research reviewed in this chapter suggest that drinking alcohol can be beneficial

to the individual in terms of his/her overall development, if it is an integrated, concordant activity. Drinking alcohol can also be destructive, i.e., can block or impede individual development. For example, drinking may help a person to "try on" new behaviors, overcome shyness, celebrate, or relax. But if alcohol is the only way for a person to accomplish these functions, then dependence and pathological drinking is likely to ensue. Alcohol use cannot compensate for major personality deficits, e.g., build self-esteem, substitute for social skills, or be a sole outlet for expressing anger.

Ego development here is of crucial importance. The individual cannot link his drinking with other needs until these needs are developed and find a place in the conscious ego, nor can the ego abandon itself to pleasure until it possesses enough flexibility to give assurance that it could return to its usual sober state. (Sanford, 1967, p. 121)

It is suggested that the drinking behavior of individuals with high levels of interpersonal need, who possess the ability to meet those needs, will be facilitative--they will report satisfaction with their drinking, tend to be moderate drinkers, and experience primarily positive outcomes as a result of drinking. Conversely, individuals with high levels of interpersonal need who do not possess a basic ability to get those needs met will be more likely to use alcohol in dysfunctional ways, i.e., they will report drinking large quantities of alcohol at a sitting, experience complications associated with drinking, and report dissatisfaction with their drinking behavior. (It is assumed for purposes of this study that inclusion and affection are reciprocal behaviors, i.e., initiating these behaviors with other people is the most effective way to meet one's own needs in these areas.)

People with low levels of both expressed and wanted interpersonal behavior are hypothesized to be infrequent drinkers. It is suggested that they are fairly content with their interpersonal lives and with their drinking. Thus, they would report a high level of satisfaction with their drinking behavior and experience only positive outcomes as a result of drinking.

Finally, the drinking behavior of individuals with low levels of wanted interpersonal behavior and high levels of expressed interpersonal behavior is more difficult to predict. (The clinical picture of these individuals is more varied than for other FIRO-B "types.") It has been predicted that these individuals are relatively infrequent drinkers. It is further predicted that these subjects will report positive (if any) outcomes associated with drinking and a high level of satisfaction with their drinking behavior.

Stated more formally, these hypotheses are:

- (1) Subjects with a high level of interpersonal need, as measured by the FIRO-B, will report a significantly higher level of drinking quantity and frequency than subjects with a low level of interpersonal need.
- (2) Subjects with high levels of both expressed and wanted interpersonal behavior will report a significantly higher level of satisfaction with alcohol use than subjects with high levels of wanted interpersonal behavior and low levels of expressed interpersonal behavior.
- (3) Subjects with high levels of both expressed and wanted interpersonal behavior will report significantly fewer drinking-related complications than subjects with high levels of wanted interpersonal behavior and low levels of expressed interpersonal behavior.

- (4) Reported consumption of alcohol will be significantly higher for subjects with high levels of wanted interpersonal behavior and low levels of expressed interpersonal behavior than for subjects with high levels of both expressed and wanted interpersonal behavior.
- (5) Subjects with low levels of both expressed and wanted interpersonal behavior will report significantly lower levels of consumption and negative outcome than subjects with high levels of expressed or wanted interpersonal behavior.
- (6) Subjects with low levels of wanted interpersonal behavior and high levels of expressed interpersonal behavior will report significantly lower levels of consumption and negative outcome and significantly higher levels of satisfaction with drinking than subjects with high levels of interpersonal need and low levels of expressed interpersonal behavior.

In summary, it is hypothesized that first, drinking behavior is, at least in part, directed at the gratification of interpersonal needs and that secondly, predictions can be made about the kind of drinking behavior individuals will engage in based on their interpersonal needs and their ability to satisfy those needs.

CHAPTER III

METHOD

Before implementing a hypothesis-testing study, it was necessary to develop and pilot an instrument which would adequately measure drinking behavior. This process will be described first, followed by the method used in the hypothesis-testing study alluded to in the previous chapter.

Pilot Study

Subjects. The pilot instrument was administered and readministered to an introductory psychology class at Old Dominion University. Two hundred and nine subjects participated in the first administration. One hundred and sixty-five students completed the instrument at both administrations. Students completed the questionnaire during class hours, and were offered experimental credits for doing so. (See Appendix V.) Participation was voluntary. The demographic composition of this sample is found in Appendix VI. (All analyses were performed on this sample except for test-retest correlations which were conducted on the 165 subjects who completed the questionnaire at both administrations.)

Instrument. The pilot instrument consisted of demographic items and items related to drinking behavior.

The demographic items, selected on the basis of relevance to drinking behavior, included age, sex, major, grade point average, marital status, year in college, religious and ethnic identification, and type of living situation.

In terms of drinking behavior, it was decided that the following multiple measures were needed to adequately assess this complex phenomenon: a measure of quantity-frequency, reported level of satisfaction, and a measure of the outcomes which subjects attribute to their drinking. In addition, an item was taken from The Whole College Catalog about Drinking (1977) concerning the interpersonal setting of subjects' drinking behaviors.

Procedures for measuring drinking amount were taken from Jessor et al. (1968). (See Appendix VII.) Besides being relatively simple, this method has the advantage of yielding a continuous QF variable as well as allowing for the separate analysis of quantity and frequency. It also allows for the calculation of QF separately for each beverage.

Based on evidence that single item measures of life satisfaction have been found to have acceptable levels of reliability and validity (Robinson & Shaver, 1973), a one item measure of satisfaction with alcohol use was developed.

Finally, a scale was developed to measure outcomes associated with drinking behavior.

The preliminary effort in this area was made by Ruth Engs (1977). As part of an evaluation package for an alcohol education program, she developed 23 behavioral items regarding common and problematic

consequences of drinking on college campuses, such as the frequency of hangovers and encounters with law enforcement officials. Gonzalez, (1978), continuing the effort to evaluate alcohol education programs, developed a 20-item negative consequences scale based on that of Engs. This scale was included in the pilot study. The test-retest coefficient for this scale is .91 (Gonzalez, 1978). While negative outcomes of alcohol use are of most concern to society, they do not represent the majority of outcomes associated with drinking, nor do they explain why most people drink. Most individuals use alcohol because of the positive outcomes associated with alcohol use. Thus it was felt that alcohol use could be more thoroughly assessed by adding items analogous to those developed by Gonzalez which would sample the universe of beneficial consequences associated with alcohol use.

In an attempt to sample this universe as thoroughly and nonredundantly as possible, the author developed 20 items in a format similar to Gonzalez's scale. These items were drawn from several sources: the effects of drinking reported by respondents in the Straus and Bacon (1953) and Cahalan, Cisin and Crossley (1969) research, motivation scales developed by Mulford and Miller (1959) (since people's motivation to drink is often tantamount to the beneficial consequences they expect to result from drinking), informal interviews with alcohol users, and Gonzalez's scale. These 20 items were interspersed with the Gonzalez Scale using a random numbers table.

Procedure. The experimenter visited a large introductory psychology class, and asked members to participate in a two-part study of alcohol use patterns among college students. The pilot

instrument (see Appendix VIII), along with a cover letter (see Appendix IX), was then distributed and collected. Three and one-half weeks later, the experimenter returned to the class and solicited participation in the second part of the study. The questionnaire and another cover letter (see Appendix X) were again distributed and collected. The experimenter then debriefed subjects, explaining the purpose of both the pilot study and the main investigation. She answered questions and thanked the class for their participation.

Data analysis. The purpose of the pilot study was to establish the reliability and validity of the measuring instrument.

Test-retest correlations were computed for both outcome scales, as well as for individual items comprising the scales. Split-half reliability coefficients and Cronbach's alpha were computed for each of the two scales. Test-retest correlations were also computed for the QF and satisfaction items.

The structure of the outcome items was also investigated by means of factor analysis. Since it was hypothesized that there existed two separate but correlated scales, the factor analysis called for a solution involving oblique rotation and two factors.

In terms of validity of the instrument, face validity of the items was examined by five University of Florida psychologists. In addition, the satisfaction item was correlated (using Pearson's r) with each of the outcome scales.

Finally, scattergram and Pearson correlation procedures were done to examine the relationship between the positive and negative outcomes experienced by individuals as a result of drinking.

Hypothesis-Testing Study

Subjects. The names and addresses of full-time juniors and seniors enrolled at Old Dominion University for the spring semester were solicited from the registrar's office. Six hundred names were randomly drawn from this sample. This number constitutes about a 15 percent sample of full-time upper-class students. It was decided to use this sample because 1) this population is not as affected by variations in drinking age laws as younger subjects are, and 2) it is assumed that drinking patterns are more normalized for this group than for freshmen and sophomores, many of whom are just beginning to drink.

Five hundred and sixty questionnaires were mailed out, and 245 were returned (a 44 percent return rate). Nine questionnaires were discarded due to incomplete data, leaving an n of 236. This sample included 102 males and 133 females. There were two sophomores, 66 juniors, 148 seniors, and 19 recent graduates in the sample. Two hundred and sixteen subjects were white; 7 were black, and 7 were of Hispanic or Indian origin. Composition of the sample by age and religious identification is found in Tables 2 and 3, respectively. (Discrepancies between composite and total sample sizes are due to missing data.)

Table 2
Composition of Sample by Age

Age	n
19-20	25
21-22	108
23-24	39
25-27	24
28-30	17
31-35	12
36-40	7
41-45	3
Missing	1
Total	236

Table 3

Composition of Sample by Religious Identification

Religion	n
Catholic	66
Protestant	109
Jewish	5
No Religious Identification	40
Other	14
Missing	2
Total	236

In general this sample is demographically representative of the population from which it was drawn, with the exception that non-white students are underrepresented.

Participation in the study was solicited by mail and was voluntary.

Instrument. Subjects completed an instrument similar to that used in the pilot study, with the exception of a few changes that were made based on the results of the pilot study. Two items were eliminated from the positive outcome scale because of redundancy, two were eliminated from the negative outcome scale because of 0 variance, and several items were reworded because of data indicating that they were unclear. The satisfaction item was divided into two items, since it was determined that satisfaction and dissatisfaction with drinking is probably a bipolar construct.

A simpler but similar method was substituted for the measurement of quantity-frequency. This method is a modification of Jessor et al.'s interview technique (1968), adapted and simplified for written administration. Scoring procedures for this method are found in

Appendix XI. The authors concluded that the simplified method yielded comparable information to their more involved technique, provided that the number of times subjects got drunk within a given time period was also assessed.

The remainder of the questionnaire was identical to that used in the pilot study, except for the addition of the FIRO-B.

The FIRO-B, discussed in the previous chapter, is a measure consisting of 54 self-report items. It is self-administered and yields six Guttman scales with possible scores ranging from zero to nine, two scores for each of the interpersonal needs postulated by Schutz. The instrument measures needs in these areas and the extent to which a person expresses behaviors in these areas. Thus the six scales are: wanted inclusion (wA), wanted control (wC), wanted affection (wA), expressed inclusion (wI), expressed control (eC), and expressed affection (eA). The sum of all six scales is the Social Interaction Index (SII), and indicates the extent to which a person desired to and is willing to get involved with people. An overall need level (NL) can be obtained by adding wI, wC, and wA. Similarly, a person's overall activity level (AL) can be obtained by adding eI, eC, and eA.

The average reproducibility index for the six scales is .94. Test-retest coefficients range from .71 to .82 (Pfeiffer & Heslin, 1973). Scale intercorrelations range from low to moderate.

Evidence for the content validity of Guttman is provided by the high reproducibility index (Lake, Miles & Earle, 1973). The measure has been successful at predicting political attitudes, group compatibility, and differences between occupational groups (Schutz, 1966).

The FIRO contains only six basic questions, each of which is repeated with slight variation nine times. Each of the resulting six scales are determined by the empirically established acceptance-rejection cut-off points for each item. Thus, for subjects to invalidate the test, they must consistently give invalid answers. The items are generally assumed to have little social desirability and to contain non-threatening content (Ryan, 1977).

Major disadvantages of the FIRO-B include the limitations of a self-report instrument and the possibility of a response set, e.g., the tendency to avoid extreme categories.

In sum, the FIRO-B is a well-developed, easy-to-administer measure of wanted and expressed interpersonal behaviors.

Procedure. Subjects received the revised questionnaire (see Appendix XII), an attached cover letter on Counseling Center letterhead (see Appendix XIII), and a postage-paid return envelope in the mail. Subjects were told of their random selection, asked to participate in the study, and assured of the confidentiality of their response. The general purpose of the study was explained in the cover letter, and subjects were invited to contact the experimenter for further debriefings. A list was kept of the subjects to whom the questionnaire was mailed in case a low return rate warranted a second mailing. This list was subsequently destroyed. Participation in the study was voluntary.

Data analyses. The quantity-frequency measure, scores on each of the six FIRO-B subscales, need level, activity level, and the social interaction index were computed for each subject.

Preliminary univariate analyses were performed to determine the distributions of the FIRO-B variables and the drinking measures. Frequencies, means, standard deviations, skewness, and kurtosis were computed for each of these variables to determine whether their distributions met the necessary assumptions of the analysis of variance model to be used in testing the hypotheses.

Because of previous research indicating the existence of interaction between sex and drinking behavior, analyses of variance with sex as the independent variable and FIRO-B and drinking measures as the dependent variables were performed. This was done to determine the necessity of including sex as an independent variable in the main analysis.

The first and most general hypothesis of the study was tested using 1) Pearson's correlation between quantity and frequency indices and level of interpersonal need, and 2) a one-way analysis of variance with QF as the dependent variable and wanted interpersonal behavior as the independent variable.

Subjects were divided into high and low groups on each of the FIRO-B scales based on the distributions of scores. The remaining hypotheses were investigated using a two-way analysis of variance. In each case, high and low levels of expressed and wanted interpersonal behavior formed the two independent factors and the measures of drinking behavior were dependent variables. All analyses were done using the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

Finally, where overall F's were significant, the LSD multiple comparison test was used to determine which cell means differed significantly from one another. This test was chosen because it is exact for unequal cell sizes (Kirk, 1968).

CHAPTER IV

RESULTS

Pilot Study

Reliability. The test-retest correlations for both the positive and negative outcome scales were quite high--.91 and .88, respectively. Individual item test-retest correlations are displayed in Table 3.

Table 4

Test-Retest Correlations for Items Comprising
Drinking Outcome Scale*
(n = 165)

Item	r	Item	r
1	.71	21	.70
2	.67	22	.63
3	.82	23	.63
4	.70	24	.69
5	.56	25	.49
6	.81	26	(cannot be computed - 0 variance)
7	.80	27	.62
8	.76	28	(cannot be computed - 0 variance)
9	.79	29	.67
10	.80	30	.75
11	.73	31	.77
12	.73	32	.76
13	.67	33	.62
14	.77	34	.78
15	.82	35	.62
16	.79	36	.67
17	.82	37	.76
18	.78	38	.71
19	.83	39	.66
20	1.00	40	.82

*p < .001 for all items

Since items 5 and 25 had relatively low test-retest correlations, it was determined that the wording of these items could be clarified.

The Spearman-Brown split-half coefficient for the positive outcome items was .95. Correlation between forms (the splitting into two ten-item subscales) was .90. Cronbach's alpha for these items was .96. The Spearman-Brown split-half coefficient for the negative outcome scale was .76. Correlation between forms was .60. Cronbach's alpha was .86. Thus, the reliability coefficients for the negative outcome items were acceptable, but somewhat lower than the other scale and also lower than the values of .90 to .94 reported by Gonzalez (1978). One factor which contributed to this result was that two items in this scale, 26 and 28, had 0 variance. This would lower the numerator and thus the value of alpha. Deleting these two items was indicated. Means and standard deviations for all items are shown in Table 4.

Test-retest correlations for the items making up the QF measure and the item concerning interpersonal settings of drinking behavior are shown in Tables 5 and 6, respectively. The interpersonal setting item was reported to be confusing by several S's, indicating a change in format for this item.

The test-retest correlation of the satisfaction item was .57-- in the lower range of single item correlations. This relatively low correlation was interpreted as due in part to the nature of the relationship between satisfaction and dissatisfaction with drinking. The item as constructed assumed that these formed a unipolar dimension, but other results pointed to a bipolar construct dimension.

The positive and negative outcome scales were correlated at .58. Figure 1 reveals the nature of this function. Three groups of

Table 5
Means and Standard Deviations for Drinking Outcome Items
(n = 165)

Positive Item	Outcome Mean	Scale SD	Negative Item	Outcome Mean	Scale SD
1	3.15	1.88	3	1.43	1.68
2	1.55	1.76	4	0.56	1.07
5	0.83	1.39	7	1.81	1.99
6	1.33	1.58	8	0.86	1.47
9	2.34	1.95	10	1.64	1.92
12	1.69	1.81	11	0.37	1.04
14	2.44	1.93	13	0.33	0.94
15	2.37	1.97	18	0.48	1.09
16	3.07	1.89	20	0.01	0.08
17	2.92	1.91	22	0.45	1.13
19	3.54	1.86	25	0.17	0.64
21	1.91	1.69	26	0.00	0.00
23	1.73	1.90	27	0.17	0.61
24	1.90	1.81	28	0.00	0.00
30	2.63	1.93	29	0.39	1.06
31	2.83	1.93	34	0.36	1.07
32	2.83	1.93	35	0.39	1.10
33	1.64	1.83	36	0.89	1.33
38	2.59	1.76	37	1.06	1.40
39	2.38	1.89	40	0.09	0.46

Table 6
Test-Retest Correlations for QF Items

Item	r*
(How often do you)	
Drink anything	.91
Drink wine	.86
1-2 glasses	.57
3-4 glasses	.78
5+ glasses	.73
Drink beer	.92
1-2 beers	.53
3-4 beers	.74
5+ beers	.83
Drink liquor	.88
1-2 drinks	.63
3-4 drinks	.73
5+ drinks	.78

*all correlations significant at $p < .001$.

Table 7
Test-Retest Correlations for Interpersonal Setting Items

Item	r*
Alone	.78
With family	.71
With one of same sex	.63
With one of opposite sex	.64
Small mixed groups	.67
Large groups	1.00

*all correlations significant at $p < .001$.

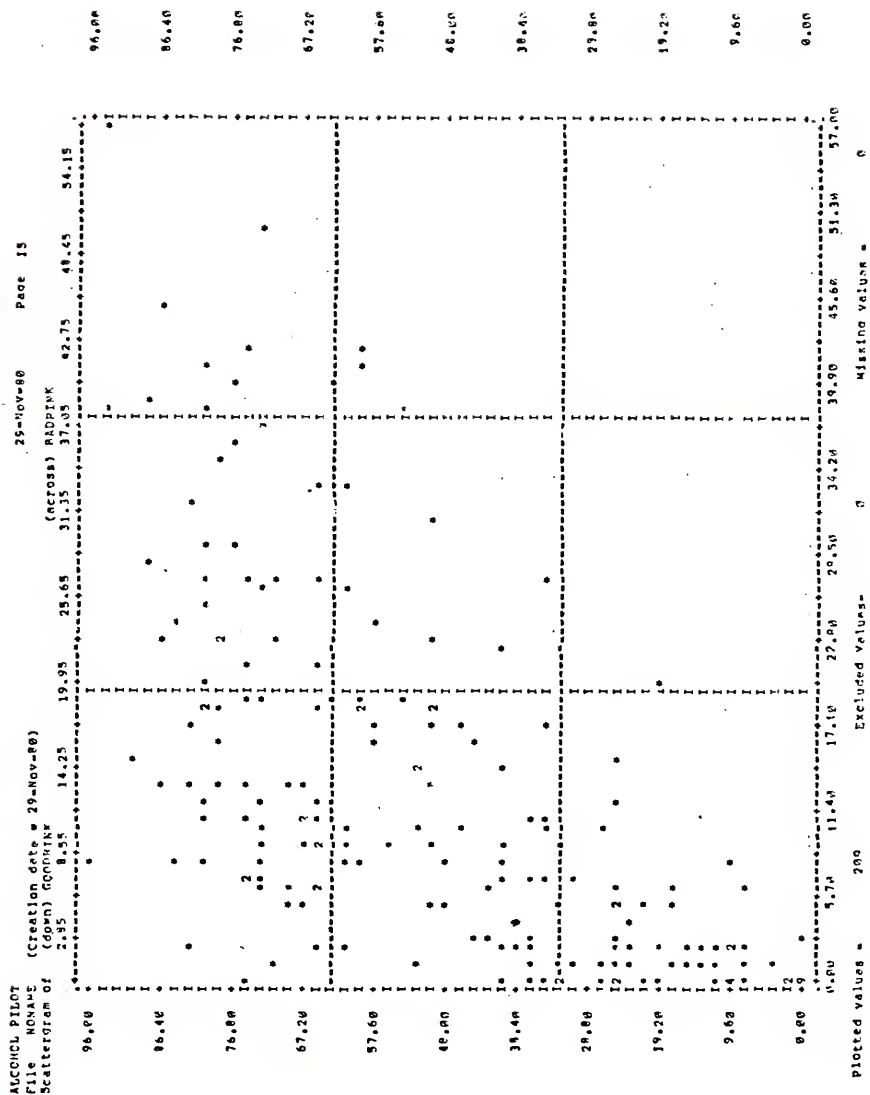


Figure 1

Scattergram of Negative Outcome Scale with Positive Outcome Scale

drinkers can be identified from this scattergram. Some individuals reported few outcomes associated with drinking; some reported primarily positive outcomes, and some reported high levels of both positive and negative outcomes. Thus it can be inferred that all drinkers experience some degree of satisfaction with alcohol use and some experience a degree of dissatisfaction as well. It was thus decided that the satisfaction item should be divided into two items, one rating satisfaction with alcohol use, and the other rating dissatisfaction.

Validity

Since the demographic and quantity-frequency items had been widely used in previous research, the primary concerns about validity had to do with the drinking outcome and satisfaction items.

Face validity of these items was established through the examination of five psychologists. Construct validity of the outcome scales is supported by the fact that scores on the two scales are related in predictable ways (see Figure 1).

The correlation between the positive outcome scale and the satisfaction item was .19 ($p < .001$). The item correlated with the negative outcome scale at .05 (not significant). This latter finding was unexpected. It is attributed to the correlation between the positive and negative outcome scales and to the faulty (unipolar) construction of the satisfaction item.

Factor analysis

The best hypothesis on which to base a factor analysis of this data was that it consists of two oblique (i.e., correlated) dimensions--

positive and negative outcomes of drinking. Therefore the factor analysis called for a solution involving oblique rotation and two factors.

In Table 8 is found the factor-pattern matrix (the regression weights of the variables with respect to the factors). Table 9 displays the rotated factor-structure matrix. An obvious pattern in the data is the sparsity of negative correlations, both in the factor matrices and the intercorrelation matrix (Appendix XIV). This result was attributed to the bipolar nature of the positive and negative outcome scales alluded to earlier.

The solution of the factor analysis indicated that the data are in fact amenable to an interpretation of two correlated ($r = .31$) factors. In general, the positive outcome items loaded more highly on factor one, and the converse was true for the negative outcome items. Of note within this pattern is the observation that item 3 (had a hangover) and item 37 (did something you regretted) both had fairly high loadings on factor one. There were three exceptions to the pattern: item 7 (driving after several drinks), 10 (drinking while driving), and 11 (coming to class after drinking). These items had slightly higher loadings on the first factor than the second. The other items all loaded had higher loadings on the predicted factor.

Other patterns in the data can be determined from the item-to-item intercorrelations (Appendix XIV). It was decided to look at correlations of .50 and above for purposes of this analysis. Using this method, four clusters were identified. The most obvious consisted of 1 (became more relaxed), 9 (was more interested in other

Table 8
Factor Pattern

	Factor 1	Factor 2
C01+	0.86042	-0.13097
C02+	0.54520	0.21959
C03-	0.34088	0.57121
C04-	0.22783	0.41424
C05+	0.44143	0.22251
C06+	0.59169	0.14904
C07-	0.51504	0.27076
C08-	0.30320	0.49216
C09+	0.77958	0.02840
C10-	0.45422	0.27900
C11-	0.29827	0.17434
C12+	0.70020	-0.10361
C13-	0.17119	0.36881
C14+	0.83856	-0.02892
C15+	0.77669	-0.01844
C16+	0.83080	-0.04009
C17+	0.87277	-0.05990
C18-	0.08365	0.64137
C19+	0.89595	-0.03093
C20-	-0.10409	0.44335
C21+	0.71909	0.00767
C22-	0.13275	0.39911
C23+	0.61566	0.14419
C24+	0.68334	0.07268
C25-	0.03990	0.52714
C27-	-0.00683	0.47999
C28-	-0.11309	0.20846
C29-	0.04239	0.47947
C30+	0.74429	-0.02721
C31+	0.85645	0.00795
C32+	0.84363	-0.02721
C34-	0.04790	0.46242
C35-	0.08859	0.51287
C36-	0.31943	0.47798
C37-	0.34200	0.51804
C38+	0.79824	0.05455
C39+	0.70580	0.05630
C40-	0.05856	0.45924
SATIS	0.30517	-0.35436

Table 9
Factor Structure

	Factor 1	Factor 2
C01+	0.81930	0.13917
C02+	0.61415	0.39076
C03-	0.52022	0.67824
C04-	0.35789	0.48577
C05+	0.51130	0.36111
C06+	0.63848	0.33481
C07-	0.60005	0.43247
C08-	0.45772	0.58735
C09+	0.78849	0.27317
C10-	0.54182	0.42161
C11-	0.35301	0.26799
C12+	0.66767	0.11623
C13-	0.28698	0.42256
C14+	0.82948	0.23436
C15+	0.77090	0.22541
C16+	0.81821	0.22075
C17+	0.85397	0.21413
C18-	0.28502	0.66763
C19+	0.88624	0.25037
C20-	0.03511	0.41067
C21+	0.72149	0.23344
C22-	0.25806	0.44079
C23+	0.66093	0.33749
C24+	0.70616	0.28723
C25-	0.20541	0.53967
C27-	0.14387	0.47784
C28-	-0.04764	0.17925
C29-	0.19292	0.49278
C30+	0.73575	0.20647
C31+	0.85895	0.27685
C32+	0.83504	0.23751
C33+	0.61002	0.17451
C34-	0.19309	0.47746
C35-	0.24962	0.54069
C36-	0.46950	0.57827
C37-	0.50465	0.62542
C38+	0.81537	0.30517
C39+	0.72347	0.27790
C40-	0.20275	0.47763
SATIS	0.19391	-0.23854

people), 14 (felt a sense of closeness with friends), 15 (behaved more affectionately with loved one), 16 (laughed more frequently), 17 (interacted more freely with friends), 19 (had fun), 24 (felt exhilarated), 32 (talked more freely), 38 (felt happier), and 39 (celebration of a special occasion was enhanced).

These variables reflect relatively frequently reported positive outcomes of drinking behavior. Variables which correlated at .50 or better with most but not all of these items were 12 (had pleasant physiological sensations), 21 (did something you were glad you did), 23 (had sexual experience positively affected), and 31 (enjoyed a party more). Together these items comprised 16 of the 20 positive outcome items. They are interpreted as reflecting two general themes: pleasant social interaction, and, to a lesser extent, pleasant feelings - relaxed, happy, exhilarated. Thus it was decided to collapse several of these items into one for the next study. Items 24 and 38 were integrated into one as were items 17 and 32.

Another cluster of intercorrelated items consisted of 2 (was more inventive), 5 (felt things seen or heard were more vivid or significant), and 6 (was more creative). These items refer to a state of "altered consciousness." Items 36 (did not remember what happened while you were drinking) and 37 (did something you later regretted) formed another mini-cluster. The logical connection between these two items is obvious. Finally, items 7 (have driven a car after having several drinks), 8 (have driven a car when you know you had too much to drink), 10 (have been drinking while driving a car), and 19 (had fun) were intercorrelated.

Hypothesis Testing Study

Univariate analyses. Frequency distributions of the FIRO-B subscales are found in Tables 10 and 11.

Table 10
Frequency Distributions of Six FIRO-B Subscales

Score	eI	eA	wC	eC	wI	wA
0	23	12	21	69	80	8
1	14	32	47	49	17	19
2	26	28	58	35	11	15
3	37	61	44	24	13	17
4	47	30	29	15	18	32
5	37	28	15	14	10	60
6	33	17	12	9	15	24
7	13	10	2	6	30	17
8	2	11	2	1	26	15
9	1	3	2	10	12	24
Missing		4	4	4	4	5

Table 11
Frequency Distributions of Need Level and Activity Level

Score	Activity Level	Need Level	Score	Activity Level	Need Level
0	2	1	15	9	17
1	1	2	16	5	8
2	13	5	17	4	13
3	10	12	18	4	11
4	9	10	19	2	4
5	8	11	20	2	4
6	20	18	21	2	2
7	16	13	22	0	5
8	26	14	23	1	1
9	20	11	24	2	1
10	22	14	25	0	1
11	9	8	26	0	0
12	16	19	27	0	0
13	19	10	Missing	5	6
14	9	15			

The means, standard deviations, and measure of kurtosis and skewness for these variables are found in Table 12.

Table 12

Means, Standard Deviations, Kurtosis, and Skewness
for FIRO-B Scales

Scale	\bar{x}	S.D.	Kurtosis	Skewness
wI	3.52	3.28	-1.53	0.25
wC	2.61	1.80	0.84	0.871
wA	4.88	2.42	-0.59	-0.06
eI	3.71	2.03	-0.62	-0.18
eC	2.22	2.41	0.90	1.25
eA	3.53	2.12	-0.26	0.50
Need level	11.00	5.46	-0.75	0.19
Activity level	9.45	4.69	0.22	0.48
Social Inter- action Index	20.44	8.78	-0.34	0.31

It can be seen from these tables that the FIRO-B variables have the general form of a normal distribution, with the exception of the expressed control and the wanted inclusion scores. In general the distributions are positively skewed, with expressed and wanted control scores having the largest degree of skewness. Standard deviations are roughly equivalent for the wanted inclusion scale which has a larger standard deviation. These deviations from the theoretical normal distribution do not preclude analysis of variance but should be taken into account when interpreting results. High and low groups on each variable were derived from the actual rather than theoretical distributions of these variables.

Frequencies of the QF items are found in Appendix XV. In general, these items were slightly to very positively skewed, and the quantity items had a very peaked distribution.

Frequencies of ratings of satisfaction with drinking are found in Table 13. The variation in these two items was slight and so skewed that analysis of variance was precluded and Pearson's r was used. Satisfaction was correlated at $-.24$ ($p < .001$) with QF, while dissatisfaction was correlated with QF at $.27$ ($p < .001$).

Table 13
Frequencies of Satisfaction Items

Item Rating	Satisfaction n	Dissatisfaction n
0	16	167
1	20	32
2	51	19
3	140	7

Sex differences. A summary of the one-way analyses of variance with sex as the independent variable is found in Table 13. Complete analysis of variance tables are found in Appendix XVI.

Table 14
Results of One-Way Analyses by Sex

Dependent Variable	F
QF	2.715
Frequency	1.161
Need Level	2.009
Activity Level	0.043
Wanted Inclusion	1.846
Wanted Control	0.085
Wanted Affection	1.847
Expressed Inclusion	0.429
Expressed Control	7.943**
Expressed Affection	3.970*
Positive Outcome Scale	0.773
Negative Outcome Scale	6.923**
* $p < .05$	** $p < .01$

It can be seen that sex differences were significant at $p < .05$ with respect to expressed control and expressed affection. The mean eC score for men was 2.71; for women, 1.81. The mean eA score was 3.80 for women and 3.23 for men. In terms of the negative outcome scale, men reported a mean of 10.00 and the mean score was 6.85 for women. Other sex differences were not significant.

Because sex differences were significant for one of the dependent variables and for 2 of the 8 independent variables, sex was not included as an independent factor in the bivariate analyses.

Bivariate analyses. The first hypothesis, that drinking behavior is a positive function of interpersonal need, was examined using Pearson's correlation between drinking variables and the FIRO-B. These correlations are shown in Table 15.

Table 15

Correlations between QF and Frequency and FIRO-B Scales

Variable	(Frequency)	(QF)
Wanted Inclusion	0.20***	0.25***
Wanted Control	-0.01	0.05
Wanted Affection	0.05	0.01
Need Level	0.13*	0.16**
Social Interaction Index	0.18**	0.17**

* $p < .05$

** $p < .01$

*** $p < .001$

Both QF and frequency of drinking were correlated at significant levels with wanted inclusion, interpersonal need level, and overall social interaction. No relationship was found between drinking behavior and need for control of affection.

Significant correlations were also examined with a one-way analysis of variance of QF and frequency by need level and wanted inclusion. Results of these analyses are shown in Tables 16 through 19.

Table 16
One-Way ANOVA of QF by Need Level

Source	SS	df	MS	F
Main effects (QF)	16.206	1	16.206	4.78*
Explained	16.206	1	16.206	
Residual	525.477	155	3.390	
Total	541.683	156	3.472	

* $p < .05$

Table 17
One-Way ANOVA of Frequency by Need Level

Source	SS	df	MS	F
Main effects (Frequency)	8.743	1	8.743	4.454*
Explained	8.743	1	8.743	
Residual	304.238	155	1.963	
Total	312.981	156	2.006	

* $p < .05$

Table 18
One-Way ANOVA of QF by Wanted Inclusion

Source	SS	df	MS	F
Main effects (QF)	63.063	1	63.063	21.083***
Explained	63.063	1	63.063	
Residual	556.365	186	2.991	
Total	619.429	187	3.312	

*** $p < .001$

Table 19
One-Way ANOVA of Frequency by Wanted Inclusion

Source	SS	df	MS	F
Main effects	22.439	1	22.439	11.577***
Explained	22.439	1	22.439	
Residual	360.513	186	1.938	
Total	382.952	187	2.048	

*** $p < .001$.

In each case, the mean frequency of drinking and the QF index was significantly higher for subjects with high levels of interpersonal need than for those with low levels. It was concluded that the first hypothesis is supported--drinking behavior is, at least in part, directed at meeting interpersonal needs, principally the need for inclusion.

Hypotheses 2, 3, and 4 predicted that subjects with high levels of both expressed and wanted interpersonal behavior would report a higher level of satisfaction, fewer drinking-related complications, and a higher alcohol consumption level than subjects with a high level of wanted interpersonal behavior and a low level of expressed interpersonal behavior. The final 2 hypotheses made predictions about these multiple measures of drinking behavior for subjects who were low on both dimensions of interpersonal behavior and for subjects with a low level of wanted behavior and a high level of expressed behavior.

The results of the two-way analyses of variance will be presented by dependent variable (i.e., QF, drinking frequency, satisfaction, drinking-related complications, and the positive outcome scale).

These results will then be summarized in terms of their implications for the aforementioned hypotheses.

The QF measure was significantly related to need and activity levels and to expressed and wanted inclusion. These results are shown in Tables 20 and 21, respectively. The ANOVA tables for QF by control and affection scales are found in Appendix XVII.

Table 20
ANOVA: QF by Need Level and Activity Level

Source	SS	df	MS	F
Main Effects	9.999	2	5.000	1.68
Need Level	0.199	1	0.199	0.067
Activity Level	5.420	1	5.420	3.772
Need Level X Activity Level	11.224	1	11.224	3.772*
Explained	21.223	3	7.074	2.377
Residual	357.084	120	2.976	
Total	378.307	123	3.076	

* $p < .05$

Table 21
QF by Expressed and Wanted Inclusion

Source				
Main Effects	48.952	2	24.476	9.707***
Wanted Inclusion	28.907	1	28.907	11.465***
Expressed Inclusion	0.075	1	0.075	0.030
wI x eI	0.354	1	0.354	0.140
Explained	49.305	3	16.435	6.518***
Residual	300.039	119	2.521	
Total	349.345	122	2.863	

*** $p < .001$.

Cell means for these ANOVAs are found in Tables 22 and 23, respectively.

Table 22

Cell Means: QF by Need Level and Activity Level

Activity Level	Need Level	
	Low	High
Low	1.71	3.11
High	2.39	2.28

Table 23

Cell Means: QF by Expressed and Wanted Inclusion

Wanted Inclusion	Expressed Inclusion	
	Low	High
Low	1.52	1.70
High	2.90	2.81

In terms of QF as a function of need and activity levels, individuals who were low on the need dimension and high on the activity dimension reported the highest consumption level--an unexpected result. High need/low activity subjects had the next highest cell mean and low need/low activity subjects had the lowest cell mean. The only pair of means which differed significantly ($p < .05$) were the highest (low need/high activity) and lowest (low need/low activity).

In terms of the inclusion dimension, the trends were as predicted: high wI/low eI subjects reported the highest consumption level and low

wI/low eI subjects reported the lowest consumption level. According to the LSD test, the high wI/low eI mean differed significantly ($p < .05$) from both the low eI/low eI mean and the low wI/high eI mean. These two means were also significantly lower than the high wI/high eI mean.

Frequency of drinking behavior was significantly related to expressed and wanted inclusion but not to the other FIRO-B scales. The results of the frequency by expressed and wanted inclusion ANOVA are found in Table 24; the other ANOVA tables are found in Appendix XVIII.

Table 24

ANOVA: Drinking Frequency by Expressed and Wanted Inclusion

Source	SS	df	MS	F
Main Effects	28.619	2	14.309	8.271 **
Wanted Inclusion	12.760	1	12.760	7.375 *
Expressed Inclusion	0.962	1	0.962	0.556
wI x eI	.002	1	0.002	0.001
Explained	.002	3	9.540	5.514
Residual	205.883	119	1.730	
Total	234.504	122	1.922	

* $p < .10$ ** $p < .01$

Cell means for drinking frequency are found in Table 25. Results of the SD multiple comparison test revealed that three pairs of means

Table 25

Cell Means: Drinking Frequency by Expressed and Wanted Inclusion

Wanted Inclusion	Expressed Inclusion	
	Low	High
Low	3.00	3.21
High	3.80	4.04

were significantly different: low wI/low eI and high wI/high eI means, low wI/high eI and high wI/high eI means, and low wI/low eI and high wI/low eI means. As indicated by the analyses for hypothesis 1, subjects reporting high levels of wanted inclusion report drinking more frequently than subjects who are low on this dimension, regardless of the level of expressed inclusion. The cell means in Table 25 are also suggestive of a slight trend for subjects with high levels of expressed inclusion to drink more frequently than subjects with low levels.

With respect to the measure of drinking-related complications (negative outcome scale), results were significant with respect to expressed and wanted inclusion and are shown in Table 26. Analysis by the other FIRO-B scales were not significant and these ANOVA tables are found in Appendix XIX.

Table 26
ANOVA: Negative Outcome Scale by Expressed and
Wanted Inclusion

Source	SS	df	MS	F
Main Effects	1455.217	2	727.609	5.293**
Wanted Inclusion	224.006	1	224.006	1.630
Expressed Inclusion	338.478	1	338.478	2.462
wI x eI	1.331	1	1.331	0.010
Explained	1456.549	3	485.516	3.532**
Residual	13334.205	97	137.465	
Total	14790.634	100	147.906	

** $p < .01$

Cell means are displayed in Table 27. As expected, the low wI/low eI group reported the fewest drinking-related complications. The highest mean score on this variable was reported by the high wI/high eI group. This result was unexpected.

Table 27

Cell Means: Negative Outcome Scale by Expressed and
Wanted Inclusion

Wanted Inclusion	Expressed Inclusion	
	Low	High
Low	4.88	9.89
High	9.00	13.42

According to the LSD multiple comparison test, the low wI/low eI mean was significantly ($p < .05$) lower than both the low wI/high eI and the high wI/high eI means.

The positive outcome scale was developed to more adequately assess drinking behavior. Because of pilot study results indicating that all drinkers reported positive outcomes (in correlation with consumption level-- $r = .63$) no predictions were made about differences among FIRO-B groups with respect to this variable. Interestingly, this variable was significantly related to all the FIRO-B variables. The results of the two-way ANOVAs of the positive outcome scale by the FIRO-B scales are displayed in Tables 28-31. The cell means for these analyses are displayed in Tables 32-35.

Table 28

ANOVA: Positive Outcome Scale by Need Level
and Activity Level

Source	SS	df	MS	F
Main Effects	5079.521	2	2539.760	4.294*
Need Level	2244.015	1	2244.015	3.794
Activity Level	277.404	1	277.404	0.469
Need X Active	1871.194	1	1871.194	3.164
Explained	6950.715	3	2316.905	3.917**
Residual	22101.523	105	591.443	
Total	69052.238	108	639.373	

* $p < .05$

** $p < .01$

Table 29

ANOVA: Positive Outcome Scale by Expressed
and Wanted Inclusion

Source	SS	df	MS	F
Main Effects	4556.002	2	2278.001	4.354*
Wanted Inclusion	297.694	1	1297.694	2.480
Expressed Inclusion	516.674	1	516.674	0.988
wI x eI	33.128	1	33.128	0.063
Explained	4589.130	3	1529.710	2.924*
Residual	50748.512	97	523.181	
Total	55337.703	100	553.377	

* $p < .05$

Table 30

ANOVA: Positive Outcome Scale by Expressed
and Wanted Control

Source	SS	df	MS	F
Main Effects	4368.630	2	2184.315	4.083*
Wanted Control	571.254	1	571.254	1.068
Expressed Control	3581.050	1	3581.050	6.694
wC x eC	322.784	1	322.784	0.603
Explained	4699.414	3	1563.805	2.923*
Residual	42794.146	80	534.927	
Total	47485.560	83	572.115	

* $p < .05$

Table 31

ANOVA: Positive Outcome Scale by Expressed
and Wanted Affection

Source	SS	df	MS	F
Main Effects	84.808	2	42.401	0.073
Wanted Affection	27.712	1	27.712	0.048
Expressed Affection	3.848	1	3.848	0.007
wA x eA	4195.679	1	4195.679	7.249**
Explained	4280.4873	3	1426.829	2.465
Residual	18202.785	66	578.830	
Total	42483.277	69	615.700	

** $p < .01$

Table 32

Cell Means: Positive Outcome Scale by Need Level
and Activity Level

Need Level	Activity Level	
	Low	High
Low	23.37	41.57
High	41.41	38.03

Table 33

Cell Means: Positive Outcome Scale by Expressed
and Wanted Inclusion

Wanted Inclusion	Expressed Inclusion	
	Low	High
Low	25.74	33.11
High	36.40	40.33

Table 34

Cell Means: Positive Outcome Scale by Expressed
and Wanted Control

Wanted Control	Expressed Control	
	Low	High
Low	29.73	47.73
High	26.89	36.00

Table 35

Cell Means: Positive Outcome Scale by Expressed
and Wanted Affection

Wanted Affection	Expressed Affection	
	Low	High
Low	33.64	66.67
High	47.00	32.64

In terms of the relationship of the positive outcome scale to need and activity levels, the low need/low activity subjects reported scores significantly lower than those of the other three groups. This finding is not surprising in that the low need/low activity level subjects had the lowest consumption level.

With respect to the inclusion dimension, means were significantly lower for low wI/low eI subjects than for high wI/high eI subjects. This latter group reported the highest frequency of positive outcomes of alcohol use.

In terms of expressed and wanted control, low wC/high eC individuals reported the highest positive outcome frequency. This mean was significantly higher than those of the low wC/low eC and high wC/low eC groups.

The significant results for the analysis of the positive outcome scale by expressed and wanted affection were somewhat anomalous given the marked lack of relationship between the affection variables and any of the other dependent variables. Low wA/high eA subjects had significantly higher scores on the positive outcome measure than both low wA/low eA subjects and high wA/high eA subjects. This result is not conclusive at all since there were only three subjects in the low wA/high eA cell. This was a much smaller n than occurred in any of the other analyses.

Finally, the satisfaction item did not vary sufficiently to allow for analysis of variance, since 62% of respondents reported being "very satisfied" and 79% reported being "not at all dissatisfied" with alcohol use.

It is concluded that these results were consistent with the first and fifth hypotheses. Results were inconsistent with the third hypothesis.

Hypothesis 2 could not be analyzed because of insufficient variation in the dependent measure, and hypotheses 4 and 6 were not supported

CHAPTER V

DISCUSSION

Pilot Study

The primary purpose of the pilot study was to determine the validity and reliability of the multiple measures of drinking behavior which were developed for use in the hypothesis-testing study. The direct implications of the pilot study data for modification of the instrument were described in Chapter IV. It was concluded from those results that alcohol use can in fact be reliably measured in terms of its consequences for the individual.

The drinking frequency items proved to be highly stable, and the items making up the QF measure had moderate to high test-retest correlations. It was inferred that some of the lower reliability coefficients were indicative of a lack of clarity, as suggested by Kerlinger (1973). Since these items, originally developed by Jessor et al. (1968), were designed for an interview format, they may have been confusing in a self-administered paper-and-pencil instrument. It was thus decided that a simplified but comparable version of the QF measure, designed by the same authors, would be used in the hypothesis-testing study in the hope of increasing both the reliability coefficient of the measure and the overall return rate.

While QF has been shown to change gradually over time, results of the pilot study are consistent with other research indicating that it is one of the most stable and measurable indices of drinking behavior.

The drinking outcome scales also proved to be highly reliable. Many experts in the field of alcohol use have advocated defining and evaluating alcohol use in terms of its consequences for the individual, and it is encouraging that this aspect of drinking behavior lends itself to measurement. The reporting of outcomes seems a valid approach, since research indicates that individuals' expectations and attributions about their use of alcohol are a major determinant of drinking behavior (Jessor et al., 1968; Kilty, 1978). Both outcome scales need further validation. This could be accomplished through 1) correlation with such measures as peer ratings of drinking outcome and 2) soliciting additional items from a sample of a population of interest.

The correlation between the positive and negative outcome scales is not surprising given that individuals would not be expected to continue a harmful behavior were not other consequences involved. Indeed the tenacity of problematic alcohol use is easily attributable to concomitant outcomes which are extremely rewarding and important to most individuals, such as relaxation, exhilaration, and feeling closer to other people.

Both measures of outcome were highly correlated with frequency of alcohol use. Other useful information would be obtained from these scales by looking at which outcomes were reported in addition to an overall reported frequency of any outcomes.

In general, while the negative outcome items are more serious in terms of their effect on the individual than the positive outcome items, the latter were much more frequently reported. This finding is interesting in the light of the widely held belief that alcohol use causes much more harm than good (Allardt et al., 1957; Cahalan et al., 1969).

The relationship between the two outcome scales, as illustrated in Figure 1, indicated three groups of drinkers: those who report few and primarily positive outcomes (presumably infrequent drinkers), those who report many positive and few negative outcomes (most drinkers), and those reporting high frequencies of both types of outcomes (problem drinkers). A question of interest for further research is whether the second and third groups report the same types of positive outcomes, or whether problem drinkers get something different out of the experience than non-problem drinkers.

The measure of satisfaction with drinking behavior, while theoretically important, did not prove very satisfactory. Its correlation with positive outcome was significant but moderate, as was the test-retest reliability coefficient. This coefficient was somewhat lower than other one item test-retest correlations, indicating that the problem was not brevity. It has already been suggested that satisfaction may be a bipolar construct, and this inference was utilized in revising the item for the hypothesis-testing study. Like ratings of life satisfaction, ratings of satisfaction with drinking tend to be quite high. This result is attributable to 1) the likelihood that most people are in fact quite satisfied with their use of alcohol, 2) the possibility that this question is highly loaded in terms of social desirability.

The results of the factor analysis provide validation for the outcome measures in that these items did in fact lend themselves to a non-orthogonal two-factor solution. The first factor contained higher loadings on the positive outcome items and was positively related to satisfaction with alcohol use, while the second factor had generally

higher loadings on the negative outcome items and was negatively related to satisfaction.

The sparsity of negative correlations in the intercorrelation matrix has already been noted. A possible explanation for this finding is that reporting any type outcome of drinking is positively correlated with frequency of drinking.

In terms of highly correlated items, the positive outcome items formed several clusters reflecting pleasant feeling, pleasant social interaction, and a state of "altered consciousness." The most frequently reported positive outcomes were "Had fun," "Became more relaxed," and "Laughed more frequently." Drinking behavior for college students is an important leisure activity.

The few high intercorrelations were found among the drinking-related complications, probably due to the extremely low reported frequency of occurrence. The one exception was the three items concerning drinking and driving. The strong association of these items with having fun is disconcerting. For many college students drinking and having fun seem to form an equivalency. The drinking-related complications most frequently reported were "Have been drinking while driving a car," "Have driven after several drinks", and "Have had a hangover."

The major limitations of the pilot study were 1) the use of an intact group instead of a random sample which may have introduced sampling bias, and 2) that the means used to validate the outcome scales were limited.

In summary, it was concluded from this study that drinking behavior can be reliably measured in terms of its attributed effects. Several subjects reported in debriefing that it had been very useful to them to

look at the role of drinking behavior in their lives in a concrete and specific way. This "functional analysis" of alcohol use has also proven useful in my treatment of clients with drinking problems. Identifying dysfunctional uses of alcohol has direct implications for what kinds of interpersonal skills and developmental tasks need to be attended to in providing an individual with alternatives to alcohol abuse.

This approach to alcohol also has potential in terms of prevention. As more is learned about functional and dysfunctional uses of alcohol, outcome scales could be used in alcohol education classes and programs to help students become aware of and assess their use of alcohol in terms of its consequences for their development.

Hypothesis-testing Study

Preliminary Analyses. The degree of skewness of the FIRO-B variables, particularly wanted inclusion, was somewhat unexpected given the fact that scale scores were empirically developed to represent normal distributions. This result may have been due to sampling error, since approximately half of the randomly drawn sample did not return the questionnaire.

The distributions of the QF variables were consistent with other research in terms of the relative proportion of abstainers, moderate drinkers, and heavy drinkers. While sex differences for the most part were not significant, trends were consistent with established evidence that men drink more and more frequently than women.

While means on the positive outcome scale were almost identical, male subjects reported significantly more drinking-related complications than female subjects. It would be useful to know if men and women reported similar or different types of positive outcomes as a result of alcohol

use. Results did not indicate that men and women differed significantly in terms of interpersonal need level, but the sexes did differ in terms of expressed control and affection. The large sex difference on the negative outcome scale is presumably related to the larger quantities of alcohol consumed by men and to the cultural reinforcement for acts of aggression and defiance on the part of young men (Skovolt, 1978). This kind of socialization must be addressed by comprehensive efforts to prevent drinking-related complications.

The distribution of the two-item satisfaction rating was similar to the results of the first study. Most subjects reported complete satisfaction with alcohol use. Again, it is not clear to what extent this finding represents reality and to what extent it reflects a socially desirable response. This aspect of drinking behavior might be better measured by a less direct method, such as semantic differential ratings.

Interestingly, satisfaction with alcohol use was negatively correlated with amount of alcohol use while dissatisfaction was positively correlated with QF. These are relatively robust correlations given that such a small proportion of subjects reported anything other than satisfaction. The suggestion is that students derive a lot of satisfaction from alcohol use, and that drinking larger amounts detracts significantly from this satisfaction. This result, while not surprising, is useful from the standpoint of alcohol education efforts, coming as it does from students themselves, rather than alcohol educators.

Main analyses. The purpose of this study was to examine the hypotheses that 1) drinking behavior is directed at the gratification of interpersonal needs and 2) that individuals' use of alcohol is a function of the relation between interpersonal need and interpersonal behavior.

The study was correlational rather than experimental in nature and made the assumption that the way in which individuals use alcohol is a function of personality variables rather than the reverse.

Results were consistent with the first and most general hypothesis. The analyses of QF and frequency by expressed and wanted inclusion were also indicative of a positive relationship between alcohol consumption and need for inclusion. The high level of alcohol consumption for high need groups seems to hold regardless of whether the level of expressed inclusion behavior is low or high.

It should be noted that the correlational nature of this study does not rule out alternative explanations for the relationship between interpersonal need and quantity and frequency of alcohol consumption. For example, it is possible that individuals with high needs for inclusion drink more partly because they place themselves more frequently in situations where drinking occurs.

It is inferred that a factor in individuals' use of alcohol is the need to be socially with other people (inclusion). Effective alcohol education must involve an awareness of both individuals' interpersonal needs and the extent to which the environment is conducive to meeting those needs.

No relationship was found between quantity and frequency of alcohol use and the need to become emotionally involved with other people (affection). These findings are consistent with the culturally defined and sanctioned "social lubrication" function of alcohol use.

It is suggested that alcohol use can and often does facilitate the initial stages of social interactions, but may not facilitate (and under some circumstances may impede) the development of interpersonal

intimacy. One anthropologist has described a South American culture where the prescribed drinking pattern for the men is to assemble and drink stupefying quantities of alcohol until they pass out (Mandelbaum, 1965). He inferred from a number of sources of evidence that alcohol use in that group fulfilled a need for companionship without the threat of intimacy. This drinking pattern is not unlike descriptions of alcohol use at some college functions, where there is even a well-developed jargon for passing out from alcohol use. The interpersonal context of alcohol use among college students will be discussed further at the end of this chapter.

In general, results indicated that the dimension of interpersonal behavior most clearly related to alcohol use was that of inclusion. There was no indication of a relationship between alcohol use and the control and affection dimensions except in the case of the positive outcome scale.

The results for the low need/low expression group on each FIRO-B dimension were quite consistent. In each case, these individuals were the least involved with alcohol in terms of consumption level and reported outcomes.

For the high wI/low eI group QF was higher than for the other three groups. Relative to the other groups, these individuals reported moderate frequencies of both types of drinking outcomes. Thus, the drinking behavior of this group was not especially problematic, as had been predicted.

The most problematic drinking behavior was reported by high wI/high eI individuals. This group reported the highest frequency of drinking-related complications as well as relatively high frequencies

of consumption and positive outcome. Ryan (1977) has suggested that individuals who are quite high on wanted and expressed inclusion have a high need for acceptance and that there may be a compulsive quality to their pursuit of social interactions. It could be that these individuals experience conflicts or inadequate feelings regarding themselves or intimate relationships which may account for their use of alcohol. As mentioned earlier, Jessor et al. (1968) reported that individuals with low expectations of getting needs met report a high frequency of drinking-related complications.

As predicted, individuals who were low on the need for inclusion and high on the expressed inclusion dimension reported a relatively low level of alcohol consumption. Unexpectedly, this group reported a moderate frequency of negative outcomes and a relatively low frequency of positive outcomes of alcohol use.

One result which is noteworthy but highly speculative due to a small n was the extremely high score on the positive outcome scale reported by the low wA/high eA subjects. It is interesting to note that this group also reported the lowest level of drinking-related complications. (This was the only instance where the low w/low e group did not report the lowest mean on any dependent measures.) The clinical interpretation for this group is that they have the ability to establish close relationships with other people and are selective with respect to their interactions.

It is suggested that learning to use alcohol in a facilitative way may be seen as a developmental task salient to the college years which is temporally related to tasks of interpersonal skill acquisition. For many students, the college experience means making friends in a new

environment and dealing with sexual intimacy for the first time. Erikson (1963) has identified the development of intimacy as an issue during young adulthood. The use of alcohol may facilitate the accomplishment of these tasks, but can be destructive if it is used to avoid them.

A major limitation of this study was the distribution of the independent variables. While the FIRO-B scales were developed so as to approximate a normal distribution, in this population the scales were positively skewed. Because of these distributions, a few cell sizes were small (9-10 subjects). Also, in most cases involving tests of hypotheses about high and low groups, the high group on each dimension really represented a moderate to high group. It was not possible to take into account some of the interactions among FIRO-B scale scores, which may have had an effect on results.

Secondly, the correlational nature of the study precluded experimental control, and results must be interpreted as tentative at this point and subject to replication with other groups and further research. For example, it would be useful to examine the effects of interventions designed to increase interpersonal skills on drinking behavior. Use of larger samples and groups who were actually high on the FIRO-B dimensions would add to the validity of results. The confounding influence of differential exposure to drinking environments could be eliminated by observing drinking behavior in a controlled setting by subjects with both high and low levels of interpersonal need. Finally, more detailed information (e.g., structured interviews) with FIRO-B groups such as the low wA/high eA subjects ("healthy drinkers") and the high wI/high eI subjects ("problem drinkers") would add to an understanding of how interpersonal need variables interact with drinking behavior.

As mentioned earlier, the 45% return rate, while fairly respectable in terms of survey research, could have introduced sampling biases which cannot be known. Finally, the limitations of retrospective self-report data apply to this study. Subjects were being asked to describe their own drinking behavior and a degree of subjectivity and distortion is likely under these circumstances.

In conclusion, the results of this study indicate that the investigation of drinking behavior in relation to interpersonal variables is a fruitful one despite the methodological difficulty involved. Alcohol use has a definite if complex relationship to these variables. It is suggested that this relationship has important implications for the promotion of healthy alcohol use and the primary and secondary prevention of pathological drinking, and thus warrants further exploration.

APPENDIX I
QUANTITY-VARIABILITY CLASSIFICATIONS*

Quantity- variability class	Modal quantity (amount drunk "nearly every time, or more than half the time)	Maximum quantity (highest quantity drunk)
1	5-6	5-6
2	3-4	5-6 (less than half the time)
3	3-4	5-6 (once in a while)
4	no mode specified	5-6 (less than half the time)
5	3-4	3-4
6	1-2	5-6 (less than half the time)
7	no mode specified	5-6 (once in a while)
8	1-2	5-6 (once in a while)
9	1-2	3-4 (less than half the time)
10	1-2	3-4 (once in a while)
11	1-2	1-2

*Cahalan, D., Cisin, I. & Crossley, H. American drinking practices. New Brunswick: Rutgers Center of Alcohol Studies, 1969, p. 13.

APPENDIX II

Q-F-V CLASSIFICATIONS

Q-F-V Group	Frequency (of any alcoholic beverage)	Quantity-Variability Class (beverage drunk most often)
1. Heavy drinkers	a. three or more times a day b. twice a day c. every day or nearly every day d. three or four times a week e. once or twice a week f. two or three times a month	1-11 1-9 1-8 1-5 1-4 1
2. Moderate drinkers	a. twice a day b. every day or nearly every day c. three or four times a week d. once or twice a week e. two or three times a month f. about once a month	10-11 9-10 6-9 5-9 2-8 1-6
3. Light drinkers	a. every day or nearly every day b. one to four times a week c. two or three times a month d. about once a month	11 10-11 9-11 7-11
4. Infrequent	drank less than once a month but at least once a year	
5. Abstainers	drank none of the three beverages as often as once a year	

*Cahalan et al., 1969, p. 14.

APPENDIX III
DRINKING FUNCTIONS SCALE*

Category	Order in list	Item
Positive social functions	1	Makes get-togethers fun.
	7	It's a pleasant way to celebrate.
	8	Just to have a good time.
	12	Because it's a pleasant recreation.
	14	Just because it's fun.
	18	Adds a certain warmth to social occasions.
	21	It's a nice way to celebrate special occasions.
	23	Makes dinner dates seem more special.
	29	Because it's enjoyable to join in with people who are enjoying themselves.
	32	It's often a pleasant sort of congenial, social activity.
Conforming social functions	2	To become part of the group.
	5	It's the accepted thing to do.
	9	Because everybody does it.
	13	To be one of the crowd.
	27	It's just a part of college life.
	30	The places where I go to be with others serve drinks.
Psycho- physiological	3	Helps you get to sleep at night.
	10	Feeling tired.
	16	Eases aches and pains.
	19	To get over headaches.
	24	When I have a cold.
	31	It settles your stomach.
Personal effects functions	4	Feeling lonely.
	6	Makes you worry less about what others are thinking of you.
	11	Gives you more confidence in yourself.
	15	Helps you forget you're not the kind of person you'd like to be.

*Jessor, Carman & Grossman, 1968, p. 110.

APPENDIX IV
THE SCALE OF DEFINITIONS OF
ALCOHOL*

Contrived Item	Percent Agree		Method of Scoring
I	15	Liquor helps me forget I am not the kind of person I really want to be.	Agree on both.
	22	Liquor helps me feel more satisfied with myself.	
II	26	Liquor helps me get along better with other people	Agree on any two.
	28	Liquor makes me less concerned with what other people think of me.	
	33	Liquor gives me more confidence in myself.	
III	55	A drink sometimes helps me feel better.	Agree on any two.
	57	Liquor helps me enjoy a party.	
	58	Liquor gives me pleasure	
IV	59	Liquor makes me less self-conscious	Agree on any two.
	62	Liquor makes me more carefree.	
	75	Liquor goes well with entertainment.	
	78	Liquor is customary on special occasions.	
V		Failure to agree with any of the preceding items.	

Coefficient of reproducibility = .989

Coefficient of scalability = .955

*Mulford and Miller, 1959, p. 387.

APPENDIX V

DEPARTMENT OF PSYCHOLOGY

RESEARCH PARTICIPATION - CREDIT SLIP

_____ should be given ____ credit(s)

for having participated in Experiment _____

are _____ Experimenter _____

Date _____

Faculty Member _____

To the student: In the space below we would like you to indicate
what you learned by participating in this study,
and describe any reactions which you have.
(100-200 words)

APPENDIX VI
DEMOGRAPHIC COMPOSITION OF PILOT STUDY
SAMPLE

SEX	n	%	AGE	n	%	CLASS	n	%	RACE	n	%
M	74	35	17	15	7	1st year	120	58	American Indian	1	1
F	135	65	18	83	40	2nd year	65	31	Black	28	14
			19	53	26	3rd year	12	6	Spanish-American	5	2
			20	15	7	4th year	9	4	White	169	82
			21	13	6	5th year	3	1	Other	5	2
			22-25	13	6						
			26-30	8	4						
			31-35	4	2						
			36-40	1	1						
			41-45	1	1						
			46-50	1	1						

APPENDIX VII

SCORING GUIDE FOR THE QUANTITY-FREQUENCY MEASURES¹

Definitions and Assumptions

1. The unit by which drinking frequency will be coded is occurrences per day.
2. While the absolute alcohol content in ordinary wines customarily ranges between 12% and 14%, some wines are fortified to the point of 20%. We will use a 15% figure in computing the absolute alcohol content of the wines drunk.
3. The State of Colorado limits alcohol content of beer to 4% and, since there is no 3.2% beer available in the community, we will use the 4% figure in estimating absolute alcohol content of beer drunk.
4. Alcohol content of liquor (whiskey, vodka, etc.) is one half of stated "proof." Since most liquor ranges between 80 and 100 proof, we will use the median figure of 90 proof, half of which is 45, which is the alcohol content of liquor of that proof.

(These figures, 15 pe-cent, 4 percent, and 45 percent, are close to those used in a subsequent State of Colorado report. "To compute the absolute alcohol equivalents, the following average percents of absolute alcohol by volume are used: beer, 4.5 percent; wine, 17 percent; distilled spirits, 45 percent" (p. 73). Facts about alcoholism and the use of alcohol in Colorado.

Alcoholism Publication No. 2. Alcoholism Division and Records and Statistics Section: Colorado State Department of Public Health, March 1966. Pp.x + 79.)

5. Wine glasses, while traditionally 3.5 oz., do not always realistically reflect the size of the container from which wine is consumed. Wine is drunk directly from the bottle and from tumblers of all sizes. We will use the estimate of 4 oz. to represent the amount of wine defined by "a glass of wine."
6. There is no draught beer sold in the community; so "beers" refers to bottles of beer. Individuals usually drink cans or bottles of beer which contain 11 or 12 oz. We will use the latter figure.
7. Whether drunk plain or mixed, a drink of liquor usually contains 1 shot of liquor, which is traditionally 1½ oz.
8. Responses of "1 or 2" drinks will be scored as 1.5 drinks. Responses of "3 or 4" drinks will be scored as 3.5 drinks. Five or more drinks will be scored as 6 drinks.

¹From Jessor, R., Graves, T., Hanson, R. & Jessor, S. Society, personality, and deviant behavior. New York: Holt, Rinehart & Winston, 1968.

SCORING GUIDE FOR THE QUANTITY-FREQUENCY MEASURES (Conti.)

Quantity Items

The determination of Quantity estimates of consumption for each beverage is figured in terms of absolute alcohol (AA) content per ounces consumed, weighted by frequency of level of consumption. This determination is arrived at as follows:

Community Survey

Scale 10

Item #	# of Drinks	# of Ounces	Amt. of AA
Wine (15% AA content, 4 oz. per drink)			
103A	6	24	3.60
103B	3.5	14	2.10
103C	1.5	6	.90
Beer (4% AA content, 12 oz. per drink)			
104A	6	72	2.88
104B	3.5	42	1.68
104C	1.5	18	.72
Liquor (45% AA content, 1.5 oz. per drink)			
105A	6	9.00	4.05
105B	3.5	5.25	2.36
105C	1.5	2.25	1.01

Each of the above items consists of 5 frequency choices which receive the following frequency weight values:

- 0 -- Never
- 1 -- Once in a while
- 1 -- Less than half the time
- 2 -- More than half the time
- 2 -- Nearly every time

For each respondent, the value associated with his choice among the 5 listed for each item is multiplied by the amount of AA associated with that item. The products for all items for each beverage are summed and then divided by the sum of the values associated with the choices within items. The resultant value is an average quantity of AA intake for each beverage, per sitting. The following is a table of all possible quantity scores for each beverage.

SCORING GUIDE FOR THE QUANTITY-FREQUENCY MEASURES (Conti.)

	<u>Beer</u>	<u>Wine</u>	<u>Liquor</u>
A	2.88	3.60	4.05
A & B	2.08	2.60	2.92
A & B & C	2.28	2.85	3.20
A & B & C	1.76	2.20	2.47
A & B & C	1.50	1.88	2.11
A & B	1.68	2.10	2.36
A & B & C	1.68	2.10	2.36
A & B & C	1.20	1.50	1.69
A & B & C	1.04	1.30	1.46
A & B & C	2.88	3.60	4.05
A & B & C	1.80	2.25	2.53
A & B & C	1.44	1.80	2.02
A & B & C	.72	.90	1.01
A & B & C	.72	.90	1.01
A & B & C	0	0	0

Quantity-Frequency Index

The Q-F Index is composed of the summed products of the Frequency Adjusted Raw Score for each beverage and the average quantity of AA intake for each beverage for each respondent. The values of the index range between 0 and 31.60. The scorer, therefore, has merely to select the appropriate quantity score for each beverage from the above table, multiply it by the appropriate frequency score and sum the products across the beverages.

The following case can serve as an example. A subject reports that he drinks wine once or twice a week. He therefore received an adjusted frequency score of 0.20. He then reports that he never drinks more than half a bottle of wine at one sitting (A), sometimes drinks 3 or 4 glasses of wine at a sitting (B), but usually drinks only 1 or 2 glasses (C); his consumption pattern for wine is A & B & C, and his quantity score from the table is 1.30. This is then multiplied by the adjusted frequency score of 0.20 to yield a wine Q-F of 0.26 when rounded to two places. This process is then repeated for the other two beverages, and the three Q-F scores summed to yield a total Q-F from all beverages.

APPENDIX VIII

PILOT INSTRUMENT

PART I: PERSONAL DATA

1. Age: _____
2. Sex: Male _____ Female _____
3. Major: _____
4. Grade point average: _____
5. Are you:
 - _____ single
 - _____ married
 - _____ separated
 - _____ divorced
 - _____ widowed
 - _____ other (what? _____)
6. Year in college:
 - _____ first year
 - _____ sophomore
 - _____ junior
 - _____ senior
 - _____ other (what? _____)
7. Where do you live:
 - _____ dorm
 - _____ apartment
 - _____ fraternity or sorority house
 - _____ with parents or relatives
 - _____ house (own or rent)
 - _____ other (where? _____)
8. Religious affiliation:
 - _____ Catholic
 - _____ Protestant
 - _____ Jewish
 - _____ no religious affiliation
 - _____ other (What? _____)
9. Ethnic/racial identification:
 - _____ Amer. Indian _____ White
 - _____ Black _____ Other
 - _____ Spanish-Amer. _____ (What?)

PART II:

1. Think about all the times you drink alcoholic beverages - beer, wine, or liquor. Put a check by the item which best describes how often you usually drink any type.

_____ never	_____ 1 or 2 times a week
_____ less than once a year	_____ 3 or 4 times a week
_____ less than once a month but at least once a year	_____ nearly every day
_____ about once a month	_____ every day
_____ 2 or 3 times a month	_____ 2 times a day
	_____ 3 or more times a day

Think of one drink as being a 12 oz. glass of beer, a 4 oz. glass of wine, or a drink containing 1½ oz. of liquor.

-2-

2. Think of all the times you have had wine recently. How often do you usually have wine?

<input type="checkbox"/> never	<input type="checkbox"/> 1 or 2 times a week
<input type="checkbox"/> less than once a year	<input type="checkbox"/> 3 or 4 times a week
<input type="checkbox"/> less than once a month but more than once a year	<input type="checkbox"/> nearly every day
<input type="checkbox"/> about once a month	<input type="checkbox"/> every day
<input type="checkbox"/> 2 or 3 times a month	<input type="checkbox"/> 2 times a day
	<input type="checkbox"/> 3 or more times a day

When you drink wine, how often do you have:

(Circle one number on each line)

	never	once in a while	less than $\frac{1}{2}$ the time	more than $\frac{1}{2}$ the time	nearly every time
one or two glasses	1	2	3	4	5
three or four glasses	1	2	3	4	5
five or more glasses	1	2	3	4	5

3. Think of all the times you have had beer recently. How often do you usually have beer?

<input type="checkbox"/> never	<input type="checkbox"/> 1 or 2 times a week
<input type="checkbox"/> less than once a year	<input type="checkbox"/> 3 or 4 times a week
<input type="checkbox"/> less than once a month but more than once a year	<input type="checkbox"/> nearly every day
<input type="checkbox"/> about once a month	<input type="checkbox"/> every day
<input type="checkbox"/> 2 or 3 times a month	<input type="checkbox"/> 2 times a day
	<input type="checkbox"/> 3 or more times a day

When you drink beer, how often do you have:

(Circle one number on each line)

	never	once in a while	less than $\frac{1}{2}$ the time	more than $\frac{1}{2}$ the time	nearly every time
one or two glasses	1	2	3	4	5
three or four glasses	1	2	3	4	5
five or more glasses	1	2	3	4	5

-3-

4. Think of all the times you have had liquor recently. How often do you usually have liquor?

_____ never	_____ 1 or 2 times a week
_____ less than once a year	_____ 3 or 4 times a week
_____ less than once a month	_____ nearly every day
_____ but more than once a year	_____ every day
_____ about once a month	_____ 2 times a day
_____ 2 or 3 times a month	_____ 3 or more times a day

When you drink liquor, how often do you have:

	never	once in a while	less than $\frac{1}{2}$ the time	more than $\frac{1}{2}$ the time	nearly every time
one or two glasses	1	2	3	4	5
three or four glasses	1	2	3	4	5
five or more glasses	1	2	3	4	5

5. How often do you usually drink:
(Circle one number on each line)

alone	1	2	3	4	5
with family	1	2	3	4	5
with one other person (same sex)	1	2	3	4	5
with one other person (oppo- site sex)	1	2	3	4	5
with small groups (same sex)	1	2	3	4	5
with small groups (mixed sex)	1	2	3	4	5
with large groups (10 or more people)	1	2	3	4	5

-4-

PART III: The following are common results of drinking that other students have reported. If you have never had a drink at all skip this section. If you currently drink or have drunk in the past, circle the number corresponding to the frequency of the occurrences during the PAST THREE MONTHS.

	NEVER	1 TIMES	2 TIMES	3 TIMES	4 TIMES	5 TIMES OR MORE
1. Became more relaxed	0	1	2	3	4	More
2. Was more inventive	0	1	2	3	4	More
3. Have had a hangover	0	1	2	3	4	More
4. Have gotten nauseated and vomited from drinking	0	1	2	3	4	More
5. Felt that things seen or heard were more vivid or significant	0	1	2	3	4	More
6. Was more creative	0	1	2	3	4	More
7. Have driven a car after having several drinks	0	1	2	3	4	More
8. Have driven a car when you know you had too much to drink	0	1	2	3	4	More
9. Was more interested in other people	0	1	2	3	4	More
10. Have been drinking while driving a car	0	1	2	3	4	More
11. Have come to class after having several drinks	0	1	2	3	4	More
12. Had pleasant physiological sensations	0	1	2	3	4	More
13. Have cut a class after having several drinks	0	1	2	3	4	More
14. Felt a sense of closeness with friends	0	1	2	3	4	More
15. Behaved more affectionately with loved one	0	1	2	3	4	More
16. Laughed more frequently	0	1	2	3	4	More
17. Interacted more freely with friends	0	1	2	3	4	More
18. Have missed a class because of a hangover	0	1	2	3	4	More
19. Had fun	0	1	2	3	4	More
20. Have been arrested for DWI (Driving While Intoxicated)	0	1	2	3	4	More

-5-

PART III (Continued)	NEVER	1 TIME	2 TIMES	3 TIMES	4 TIMES	5 TIMES OR MORE
21. Did something you were glad you did	0	1	2	3	4	More
22. Have you been criticized by someone you were dating because of your drinking	0	1	2	3	4	More
23. Had sexual experience positively affected	0	1	2	3	4	More
24. Felt exhilarated	0	1	2	3	4	More
25. Have had trouble with the law because of drinking	0	1	2	3	4	More
26. Have lost a job because of drinking	0	1	2	3	4	More
27. Got a lower grade because of drinking too much	0	1	2	3	4	More
28. Gotten into trouble with the school administration because of behavior resulting from drinking too much	0	1	2	3	4	More
29. Gotten into a fight after drinking	0	1	2	3	4	More
30. Slept better	0	1	2	3	4	More
31. Enjoyed a party more	0	1	2	3	4	More
32. Talked more freely	0	1	2	3	4	More
33. Enjoyed a meal more	0	1	2	3	4	More
34. Thought you might have a problem with your drinking	0	1	2	3	4	More
35. Damaged property, pulled a fire alarm, or other such behavior after drinking	0	1	2	3	4	More
36. Did not remember what happened while you were drinking	0	1	2	3	4	More
37. Have done something after drinking which you later regretted	0	1	2	3	4	More
38. Felt happier	0	1	2	3	4	More
39. Celebration of a special occasion was enhanced	0	1	2	3	4	More
40. Were involved in some type of accident after drinking	0	1	2	3	4	More

-6-

PART IV. Circle the number which best describes your satisfaction at this time with your personal use of alcohol.

- | | | | |
|----|--------------------------------------|---|--------------------|
| -3 | very unsatisfied | 1 | slightly satisfied |
| -2 | somewhat unsatisfied | 2 | somewhat satisfied |
| -1 | slightly unsatisfied | 3 | very satisfied |
| 0 | neither satisfied nor
unsatisfied | | |

APPENDIX IX
COVER LETTER FOR PART I OF PILOT STUDY

October, 1980

Dear Student:

You have been selected as part of a representative group of students enrolled at Old Dominion University this semester. We hope to learn more about the pattern of alcohol use and other activities of college students in order to design programs which will best meet the needs of this campus community. Your input is essential in accomplishing this task.

The attached questionnaire is a series of questions about you. It has been designed to gather a maximum of information in a minimum amount of time. It takes fifteen to twenty minutes to complete. There are no right or wrong answers - we are interested in the answer which best describes you. The knowledge we gain depends on your willingness to be thoughtful and honest in your answers.

Your response to this questionnaire is completely confidential and will be used for research purposes only. If you are interested in the results of this survey or if you have additional comments or questions, please contact me at the above address. Your response to this study is highly valued. Thanks for your help!

Sincerely,

Therese M. May, M.A.
Staff Psychologist

TMM/bet

APPENDIX X
COVER LETTER FOR PART II OF PILOT STUDY

November, 1980

Dear Student:

Thank you for agreeing to participate in the follow-up part of a study of alcohol use patterns and other activities of college students.

Here's what to do:

1. You must have participated in Part I to get credit.
2. Put your name & social security number on the credit slip and I will return it in for you.
3. Put the last 5 digits of your phone number on the back of the last page of the questionnaire.
4. Fill out the questionnaire completely and turn in to me.

Once again, your assistance has been invaluable. I'll be discussing the study with you shortly. If you have any further questions, don't hesitate to contact me.

Best wishes,

Therese May

APPENDIX XI

SCORING GUIDE FOR MODIFIED QUANTITY-FREQUENCY MEASURE¹

Definitions & Assumptions:

Same as for previous method.

Frequency Items:

The following is a table of frequency values to be assigned to frequency responses for each beverage based on a times per day unit:

Response Choices	Values
1. 1 or 2 times a day	2.00
2. about 3 or 4 times a week	0.50
3. about 1 or 2 times a week	0.20
4. about 1 or 2 times a month	0.05
5. at least 1 time a year	0.01
6. less than 1 time a year	0.00
7. never	0.00

The frequency item for each beverage receives its appropriate frequency value score.

Quantity Items:

The determination of quantity estimates of consumption for each beverage is figured in terms of absolute alcohol (AA) content per ounces consumed. The following is a table of levels of consumption and AA content for each beverage:

Quantity levels	Total & Absolute Alcohol Contents					
	Wine		Beer		Liquor	
	oz.	AA	oz.	AA	oz.	AA
1.	30.	4.50	96.	3.84	12.00	5.40
2.	18.	2.70	66.	2.64	8.25	3.71
3.	14.	2.10	42.	1.68	5.25	2.36
4.	6.	0.90	18.	0.72	2.25	1.01
5.	2.	0.30	6.	0.24	0.75	0.34
6.	00.	0.00	00	0.00	0.00	0.00

For each respondent, the AA values associated with his response for each beverage constitute his quantity scores.

The Q-F Index for a beverage is the product of the frequency value and quantity score for that beverage. The Total Q-F Index is the sum of the products taken across beverages.

¹from Jessor, R., Graves, T., Hanson, R. & Jessor, S. Society, personality, and deviant behavior. New York: Holt, Rinehart & Winston, 1968.

APPENDIX XII
REVISED QUESTIONNAIRE

1

PART I PERSONAL DATA

- | | |
|-------------------------------|-----------------------------------|
| 1. Age: ____ | 7. Where do you live: |
| 2. Sex: Male ____ Female ____ | ____ drom |
| 3. Major: _____ | ____ apartment |
| 4. Grade point average: _____ | ____ fraternity or sorority house |
| 5. Are you: ____ single | ____ with parents or relatives |
| ____ married | ____ house (own or rent) |
| ____ separated | ____ other (where? _____) |
| ____ divorced | 8. Religious affiliation: |
| ____ widowed | ____ Catholic |
| ____ other (what? _____) | ____ Protestant |
| | ____ Jewish |
| 6. Year in college: | ____ no religious affiliation |
| ____ first year | ____ other (what? _____) |
| ____ sophomore | 9. Ethnic/racial identification: |
| ____ junior | ____ Amer. Indian ____ White |
| ____ senior | ____ Black ____ Other |
| ____ other (what? _____) | ____ Span. Amer. ____ (What?) |

PART II

1. Think about all the times you drink alcoholic beverages - beer, wine, or liquor. Put a check by the item which best describes how often you usually drink any type of alcoholic beverage.
- | | |
|---------------------------------------|--------------------------------------|
| ____ one or two times a day | ____ about one or two times a month |
| ____ about three or four times a week | ____ at <u>least</u> one time a year |
| ____ about one or two times a week | ____ less than one time a year |
| | ____ never |

-2-

(Please answer these questions whether you drink alcohol or not.)

2. How often do you usually drink wine? Check one.

<input type="checkbox"/> one or two times a day	<input type="checkbox"/> about one or two times a month
<input type="checkbox"/> about three or four times a week	<input type="checkbox"/> at <u>least</u> one time a year
<input type="checkbox"/> about one or two times a week	<input type="checkbox"/> less than one time a year
	<input type="checkbox"/> never

Think of one glass of wine as being one 4 oz. glass.
 When you drink wine, how much do you usually drink at one time?

<input type="checkbox"/> a bottle or more	<input type="checkbox"/> one or two glasses
<input type="checkbox"/> about half a bottle, or about five glasses	<input type="checkbox"/> less than one glass
<input type="checkbox"/> three or four glasses	<input type="checkbox"/> never drink wine

3. How often do you usually drink beer? Check one.

<input type="checkbox"/> one or two times a day	<input type="checkbox"/> about one or two times a month
<input type="checkbox"/> about three or four times a week	<input type="checkbox"/> at <u>least</u> one time a year
<input type="checkbox"/> about one or two times a week	<input type="checkbox"/> less than one time a year
	<input type="checkbox"/> never

Think of one beer as being one 11 oz. glass.
 When you drink beer, how much do you usually have at one time?

<input type="checkbox"/> seven or more glasses	<input type="checkbox"/> one or two glasses
<input type="checkbox"/> five or six glasses	<input type="checkbox"/> less than one glass
<input type="checkbox"/> three or four glasses	<input type="checkbox"/> never drink beer

-3-

4. How often do you usually have liquor? Check one.

- | | |
|---|--|
| <input type="checkbox"/> one or two times a day | <input type="checkbox"/> about one or two times a month |
| <input type="checkbox"/> about three or four times a week | <input type="checkbox"/> at <u>least</u> one time a year |
| <input type="checkbox"/> about one or two times a week | <input type="checkbox"/> less than one time a year |
| | <input type="checkbox"/> never |

Think of one drink as containing 1 1/2 oz. of liquor.

When you drink liquor, how much do you usually have at one time?

- | | |
|---|--|
| <input type="checkbox"/> seven or more drinks | <input type="checkbox"/> one or two drinks |
| <input type="checkbox"/> five or six drinks | <input type="checkbox"/> less than one drink |
| <input type="checkbox"/> three or four drinks | <input type="checkbox"/> never drink liquor |

5. How often in the last THREE MONTHS have you had a drink:
(Circle one number on each line)

	1 Time	2 Times	3 Times	4 Times	5 Times	6 Times	7 or More Times
alone	1	2	3	4	5	6	7
with family	1	2	3	4	5	6	7
with one other person (same sex)	1	2	3	4	5	6	7
with one other person (opposite sex)	1	2	3	4	5	6	7
with small groups (same sex)	1	2	3	4	5	6	7
with small groups (mixed sex)	1	2	3	4	5	6	7
with large groups (10 or more people)	1	2	3	4	5	6	7

-4-

PART III The following are common results of drinking that other students have reported. If you have never had a drink at all skip this section. If you currently drink or have drunk in the past, circle the number corresponding to the frequency of the occurrences during the PAST THREE MONTHS.

	NEVER	1 TIMES	2 TIMES	3 TIMES	4 TIMES	5 TIMES OR MORE
1. Became more relaxed	0	1	2	3	4	More
2. Was more inventive	0	1	2	3	4	More
3. Have had a hangover	0	1	2	3	4	More
4. Have gotten nauseated and vomited from drinking	0	1	2	3	4	More
5. Felt that experiences were more vivid or important	0	1	2	3	4	More
6. Was more creative	0	1	2	3	4	More
7. Have driven a car after having several drinks	0	1	2	3	4	More
8. Have driven a car when you know you had too much to drink	0	1	2	3	4	More
9. Was more interested in other people	0	1	2	3	4	More
10. Have been drinking while driving a car	0	1	2	3	4	More
11. Have come to class after having several drinks	0	1	2	3	4	More
12. Had pleasant physiological sensations	0	1	2	3	4	More
13. Have cut a class after having several drinks	0	1	2	3	4	More
14. Felt a sense of closeness with friends	0	1	2	3	4	More
15. Behaved more affectionately with loved one	0	1	2	3	4	More
16. Laughed more frequently	0	1	2	3	4	More
17. Interacted more freely with friends	0	1	2	3	4	More
18. Have missed a class because of a hangover	0	1	2	3	4	More
19. Had fun	0	1	2	3	4	More
20. Have been arrested for DWI (Driving While Intoxicated)	0	1	2	3	4	More

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PART III (continued)

	<u>NEVER</u>	<u>1</u> <u>TIME</u>	<u>2</u> <u>TIMES</u>	<u>3</u> <u>TIMES</u>	<u>4</u> <u>TIMES</u>	<u>5 TIMES</u> <u>OR MORE</u>
21. Did something you were glad you did	0	1	2	3	4	More
22. Have you been criticized by someone you were dating because of your drinking	0	1	2	3	4	More
23. Had sexual experience positively affected	0	1	2	3	4	More
24. Have been spoken to by a law enforcement official because of drinking behavior	0	1	2	3	4	More
25. Got a lower grade because of drinking too much	0	1	2	3	4	More
26. Gotten into a fight after drinking	0	1	2	3	4	More
27. Slept better	0	1	2	3	4	More
28. Enjoyed a party more	0	1	2	3	4	More
29. Enjoyed a meal more	0	1	2	3	4	More
30. Thought you might have a problem with your drinking	0	1	2	3	4	More
31. Damaged property, pulled a fire alarm, or other such behavior after drinking	0	1	2	3	4	More
32. Did not remember what happened while you were drinking	0	1	2	3	4	More
33. Have done something after drinking which you later regretted	0	1	2	3	4	More
34. Felt happier or more exhilarated	0	1	2	3	4	More
35. Celebration of a special occasion was enhanced	0	1	2	3	4	More
36. Were involved in some type of accident after drinking	0	1	2	3	4	More
37. Got drunk	0	1	2	3	4	More

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PART IV

1. Circle the number which best describes how satisfied you are at this time with your personal use of alcohol.

0	not particularly satisfied	2	somewhat satisfied
1	slightly satisfied	3	very satisfied

2. Circle the number which best describes how dissatisfied you are at this time with your personal use of alcohol.

0	not at all dissatisfied	2	somewhat dissatisfied
1	slightly dissatisfied	3	very dissatisfied

PART VI*

These questions explore the typical ways you interact with people. Sometimes people are tempted to answer questions like these in terms of what they think a person should do. This is not what is wanted here. We would like to know how you actually behave. Some items may seem similar to others. However, each item is different so please answer each one without regard to the others. Do not debate long over any item.

For each statement below, decide which of the following answers best applies to you. Place the number of the answer at the left of the statement. Please be as honest as you can.

1. never 2. rarely 3. occasionally 4. sometimes 5. often
6. usually

- | | |
|---|--|
| ___ 1. I try to be with people. | ___ 9. I try to include other people in my plans. |
| ___ 2. I let other people decide what to do. | ___ 10. I let other people control my actions. |
| ___ 3. I join social groups. | ___ 11. I try to have people around me. |
| ___ 4. I try to have close relationships with people. | ___ 12. I try to get close and personal with people. |
| ___ 5. I tend to join social organizations when I have the opportunity. | ___ 13. When people are doing things together I tend to join them. |
| ___ 6. I let other people strongly influence my actions. | ___ 14. I am easily led by people. |
| ___ 7. I try to be included in informal social activities. | ___ 15. I try to avoid being alone. |
| ___ 8. I try to have close, personal relationships with people. | ___ 16. I try to participate in group activities. |

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For each of the next group of statements, choose one of the following answers:

1. nobody 2. one or two people 3. a few people 4. some people 5. many people 6. most people

- | | |
|---|--|
| ___ 17. I try to be friendly to people. | ___ 23. I try to get close and personal with people. |
| ___ 18. I let other people decide what to do. | ___ 24. I let other people control my actions. |
| ___ 19. My personal relationships with people are cool and distant. | ___ 25. I act cool and distant with people. |
| ___ 20. I let other people take charge of things. | ___ 26. I am easily led by people. |
| ___ 21. I try to have close relationships with people. | ___ 27. I try to have close, personal relationships with people. |
| ___ 22. I let other people strongly influence my actions. | |

For each of the next group of statements, choose one of the following answers:

1. nobody 2. one or two people 3. a few people 4. some people 5. many people 6. most people

- | | |
|---|--|
| ___ 28. I like people to invite me to things. | ___ 35. I like people to act cool and distant toward me. |
| ___ 29. I like people to act close and personal with me. | ___ 36. I try to have other people do things the way I want them done. |
| ___ 30. I try to influence strongly other people's actions. | ___ 37. I like people to ask me to participate in their discussions. |
| ___ 31. I like people to ask me to join in their activities. | ___ 38. I like people to act friendly toward me. |
| ___ 32. I like people to act close toward me. | ___ 39. I like people to invite me to participate in their activities. |
| ___ 33. I try to take charge of things when I am with people. | ___ 40. I like people to act distant toward me. |
| ___ 34. I like people to include me in their activities. | |

For each of the next group of statements, choose one of the following answers:

1. never 2. rarely 3. occasionally 4. sometimes 5. often 6. usually

- | | |
|--|--|
| ___ 41. I try to be the dominant person when I am with people. | ___ 48. I like people to include me in their activities |
| ___ 42. I like people to invite me to things. | ___ 49. I like people to act close and personal with me. |
| ___ 43. I like people to act close toward me. | ___ 50. I try to take charge of things when I'm with people. |
| ___ 44. I try to have other people do things I want done. | ___ 51. I like people to invite me to participate in their activities. |
| ___ 45. I like people to invite me to join their activities. | ___ 52. I like people to act distant toward me. |
| ___ 46. I like people to act cool and distant toward me. | ___ 53. I try to have other people do things the way I want them done. |
| ___ 47. I try to influence strongly other people's actions. | ___ 54. I take charge of things when I'm with people. |

THANKS FOR YOUR HELP!

APPENDIX XIII

COVER LETTER

January, 1981

Dear Student:

You have been selected as part of a representative group of students enrolled at Old Dominion University this semester. We hope to learn more about the patterns of alcohol use and other activities of college students in order to design programs which will best meet the needs of this campus community. Your input is essential in accomplishing this task.

The attached questionnaire is a series of questions about you. It has been designed to gather a maximum of information in a minimum amount of time. It takes twenty to thirty minutes to complete. There are no right or wrong answers - we are interested in the answer which best describes you. The knowledge we gain depends on your willingness to be thoughtful and honest in your answers.

I hope you can find time to fill out this questionnaire and return it to me in the enclosed, postage paid envelope. Your response to this questionnaire is completely confidential, and will be used for research purposes only. If you are interested in the results of this survey or if you have additional comments or questions, please contact me at the above address. Your response to this study is highly valued. Thank you for your help!

Best wishes,

Therese M. May, M.A.
Staff Psychologist

TMM/bet

APPENDIX XIV

ITEM-TO-ITEM INTERCORRELATIONS OF DRINKING OUTCOME ITEMS*

ITEM	1	2	3	4	5	6	7
1	1.00	.46	.40	.30	.33	.44	.50
2	.46	1.00	.42	.27	.39	.68	.37
3	.40	.42	1.00	.46	.36	.32	.46
4	.28	.27	.46	1.00	.28	.25	.32
5	.33	.39	.36	.28	1.00	.54	.25
6	.44	.68	.32	.25	.54	1.00	.36
7	.50	.37	.46	.32	.26	.36	1.00
8	.33	.25	.51	.41	.27	.24	.71
9	.64	.52	.44	.29	.39	.57	.47
10	.36	.37	.40	.33	.19	.30	.74
11	.27	.24	.20	.14	.38	.36	.33
12	.47	.39	.21	.17	.32	.48	.37
13	.24	.25	.30	.27	.27	.29	.27
14	.67	.45	.41	.33	.45	.49	.47
15	.58	.41	.38	.21	.38	.42	.45
16	.67	.42	.43	.30	.41	.44	.46
17	.71	.42	.40	.23	.42	.45	.45
18	.19	.33	.50	.39	.19	.28	.29
19	.74	.50	.48	.32	.40	.48	.54
20	.01	.04	.07	.10	.07	.08	.08
21	.56	.50	.36	.15	.40	.51	.40
22	.19	.27	.30	.09	.18	.24	.28
23	.49	.45	.37	.22	.28	.46	.44
24	.55	.45	.37	.38	.38	.47	.28
25	.11	.20	.26	.06	.12	.09	.18
27	.03	.15	.33	.36	.08	.14	.13
28	-.11	.02	.11	.03	.05	.06	.05
29	.09	.24	.26	.18	.24	.17	.09
30	.65	.45	.38	.26	.35	.42	.43
31	.65	.53	.48	.27	.37	.50	.46
32	.70	.43	.45	.28	.39	.45	.44
33	.46	.31	.23	.16	.31	.37	.35
34	.13	.23	.34	.05	.14	.11	.21
35	.13	.24	.34	.16	.27	.20	.20
36	.30	.34	.49	.35	.32	.37	.34
37	.31	.37	.51	.41	.35	.41	.34
38	.55	.36	.35	.21	.27	.49	.44
39	.55	.36	.35	.21	.27	.39	.44
40	.16	.14	.28	.11	.24	.19	.11

*Item 26 could not be included in the factor analysis because it did not vary.

APPENDIX XIV (Conti.)

ITEM-TO-ITEM INTERCORRELATIONS OF DRINKING
OUTCOME ITEMS*

ITEM	8	9	10	11	12	13	14
1	.33	.64	.37	.27	.47	.24	.67
2	.25	.52	.38	.24	.39	.25	.45
3	.51	.44	.40	.20	.21	.30	.41
4	.41	.29	.33	.14	.17	.27	.33
5	.27	.39	.19	.38	.32	.27	.45
6	.24	.57	.30	.37	.48	.29	.49
7	.71	.47	.74	.33	.31	.27	.47
8	1.00	.41	.67	.31	.24	.24	.35
9	.41	1.00	.43	.30	.50	.23	.66
10	.57	.43	1.00	.28	.33	.25	.43
11	.31	.30	.28	1.00	.21	.45	.26
12	.24	.50	.33	.23	1.00	.15	.55
13	.24	.23	.25	.45	.15	1.00	.24
14	.35	.66	.43	.26	.55	.24	1.00
15	.31	.59	.43	.24	.53	.23	.70
16	.32	.64	.35	.24	.44	.22	.68
17	.34	.69	.36	.26	.47	.23	.70
18	.34	.20	.27	.13	.19	.35	.26
19	.39	.66	.51	.24	.52	.22	.68
20	.12	.04	.07	.19	.04	.33	.06
21	.33	.55	.35	.22	.52	.16	.56
22	.32	.19	.24	.29	.05	.17	.18
23	.39	.48	.47	.12	.50	.15	.50
24	.25	.50	.25	.15	.53	.18	.58
25	.22	.14	.16	.08	.12	.23	.20
27	.24	.15	.09	.01	.14	.15	.09
28	.05	-.04	.13	-.03	-.06	-.02	-.02
29	.23	.16	.15	.02	.09	.06	.14
30	.33	.52	.35	.26	.50	.12	.57
31	.32	.67	.44	.26	.54	.23	.66
32	.32	.67	.39	.27	.45	.22	.69
33	.20	.45	.30	.30	.43	.25	.46
34	.25	.19	.18	.06	.11	.03	.12
35	.25	.23	.15	.14	.19	.13	.16
36	.35	.34	.36	.12	.23	.24	.36
37	.42	.39	.37	.15	.23	.21	.43
38	.35	.60	.36	.31	.53	.20	.64
39	.34	.46	.42	.14	.46	.12	.61
40	.16	.18	.10	.16	.10	.20	.16

APPENDIX XIV (Conti.)

ITEM-TO-ITEM INTERCORRELATIONS OF DRINKING
OUTCOME ITEMS*

ITEM	15	16	17	18	19	20	21
1	.57	.67	.71	.19	.74	.01	.56
2	.41	.42	.42	.33	.50	.04	.50
3	.38	.43	.40	.50	.48	.07	.36
4	.22	.30	.23	.39	.32	.10	.15
5	.38	.41	.42	.19	.40	.07	.40
6	.42	.44	.45	.28	.48	.08	.51
7	.45	.46	.43	.29	.54	.08	.40
8	.31	.32	.34	.34	.39	.12	.33
9	.59	.64	.69	.20	.66	.04	.55
10	.43	.35	.36	.27	.51	.07	.35
11	.24	.24	.26	.13	.24	.19	.22
12	.53	.44	.47	.19	.52	.04	.52
13	.23	.22	.23	.35	.22	.33	.16
14	.70	.08	.70	.26	.68	.06	.56
15	1.00	.60	.66	.17	.61	.02	.53
16	.60	1.00	.85	.19	.82	.01	.47
17	.65	.85	1.00	.17	.80	.02	.57
18	.17	.19	.17	1.00	.26	.26	.23
19	.61	.82	.80	.26	1.00	-.02	.23
20	.02	.01	.02	.26	-.02	1.00	.08
21	.53	.47	.57	.23	.60	.08	1.00
22	.19	.27	.26	.08	.22	.18	.17
23	.72	.42	.51	.20	.52	.08	.50
24	.54	.55	.57	.29	.57	.07	.58
25	.21	.17	.20	.25	.19	.35	.21
27	.13	.13	.17	.42	.09	.18	.12
28	.06	-.01	-.04	-.03	.05	-.01	.00
29	.15	.14	.19	.24	.17	.09	.16
30	.53	.61	.59	.21	.66	.03	.49
31	.61	.68	.73	.28	.81	.07	.63
32	.59	.76	.78	.22	.80	-.02	.50
33	.45	.47	.49	.11	.49	.15	.35
34	.13	.17	.22	.18	.18	-.04	.10
35	.15	.16	.15	.27	.22	.18	.32
36	.30	.41	.43	.42	.39	.13	.25
37	.43	.40	.38	.36	.42	.14	.31
38	.50	.63	.67	.28	.72	.09	.60
39	.60	.52	.61	.29	.65	.08	.59
40	.17	.16	.18	.34	.14	.28	.13

APPENDIX XIV (Conti.)

ITEM-TO-ITEM INTERCORRELATIONS OF DRINKING
OUTCOME ITEMS*

ITEM	22	23	24	25	27	28
1	.19	.49	.55	.11	.03	-.12
2	.27	.45	.45	.20	.15	.02
3	.30	.37	.38	.26	.33	.11
4	.09	.22	.38	.06	.36	.03
5	.18	.28	.38	.12	.08	.05
6	.24	.49	.47	.09	.04	-.06
7	.28	.44	.28	.18	.13	.04
8	.32	.39	.25	.22	.24	.05
9	.19	.48	.50	.14	.15	-.05
10	.24	.47	.25	.12	.09	.13
11	.29	.12	.15	.08	.01	-.03
12	.05	.50	.53	.12	.15	-.06
13	.17	.15	.18	.23	.15	-.02
14	.18	.50	.58	.20	.09	-.02
15	.19	.72	.54	.21	.13	.06
16	.27	.42	.55	.17	.13	-.01
17	.26	.51	.57	.20	.12	-.04
18	.09	.20	.29	.25	.42	-.03
19	.22	.52	.57	.19	.09	.05
20	.18	.08	.07	.35	.18	-.01
21	.17	.50	.58	.21	.12	.00
22	1.00	.25	.13	.31	-.03	.04
23	.26	1.00	.53	.24	.22	.05
24	.13	.53	1.00	.22	.18	-.04
25	.31	.24	.22	1.00	.19	-.04
27	-.03	.22	.18	.19	1.00	-.02
28	.04	.05	-.04	.20	-.01	1.00
29	.25	.27	.22	.27	.15	.05
30	.18	.39	.52	.15	.10	-.09
31	.18	.56	.57	.22	.13	-.03
32	.22	.43	.52	.16	.13	-.07
33	.15	.34	.43	.17	.11	-.06
34	.39	.18	.09	.30	.11	-.12
35	.11	.18	.27	.37	.24	-.05
36	.27	.32	.40	.16	.18	-.05
37	.30	.36	.47	.32	.28	.10
38	.20	.47	.61	.18	.12	-.06
39	.14	.53	.48	.27	.18	.02
40	.13	.21	.20	.31	.18	-.01

APPENDIX XIV (Conti.)

ITEM-TO-ITEM INTERCORRELATIONS OF DRINKING
OUTCOME ITEMS*

ITEM	29	30	31	32	33	34	35
1	.09	.65	.65	.70	.46	.13	.13
2	.24	.45	.53	.43	.31	.23	.24
3	.24	.45	.53	.43	.31	.23	.24
4	.18	.27	.27	.28	.16	.25	.16
5	.24	.35	.40	.39	.31	.14	.27
6	.17	.42	.51	.45	.37	.11	.20
7	.09	.43	.46	.44	.35	.21	.20
8	.23	.33	.32	.32	.20	.25	.25
9	.16	.52	.67	.67	.45	.19	.23
10	.15	.35	.44	.39	.30	.18	.15
11	.02	.26	.26	.27	.30	.06	.14
12	.09	.50	.54	.45	.43	.11	.19
13	.06	.12	.23	.22	.25	.03	.13
14	.14	.57	.66	.69	.46	.12	.16
15	.15	.53	.62	.59	.45	.13	.14
16	.14	.61	.68	.76	.47	.17	.16
17	.19	.59	.73	.78	.49	.22	.16
18	.24	.21	.28	.22	.11	.18	.27
19	.17	.66	.81	.80	.49	.18	.22
20	.09	.03	.07	-.02	.14	-.04	.18
21	.16	.49	.63	.50	.39	.10	.32
22	.25	.18	.18	.22	.15	.39	.11
23	.27	.39	.56	.43	.34	.18	.18
24	.22	.52	.57	.52	.43	.09	.27
25	.27	.15	.22	.16	.17	.30	.37
27	.15	.10	.13	.13	.11	.11	.24
28	.05	-.09	-.03	-.07	-.06	.12	.05
29	1.00	.12	.18	.17	.13	.37	.36
30	.12	1.00	.59	.58	.42	.12	.27
31	.18	.59	1.00	.75	.50	.16	.27
32	.17	.58	.75	1.00	.55	.21	.25
33	.13	.42	.50	.55	1.00	.20	.04
34	.37	.12	.16	.21	.20	1.00	.25
35	.36	.27	.27	.25	.04	.25	1.00
36	.26	.29	.40	.42	.28	.28	.27
37	.27	.36	.45	.42	.29	.31	.27
38	.20	.59	.77	.70	.51	.23	.23
39	.16	.52	.65	.58	.42	.14	.23
40	.11	.18	.18	.19	.17	.14	.32

APPENDIX XIV (Conti.)

ITEM-TO-ITEM INTERCORRELATIONS OF DRINKING
OUTCOME ITEMS*

ITEM	36	37	38	39	40
1	.30	.33]	.69	.55	.16
2	.34	.37	.50	.36	.14
3	.49	.57	.45	.35	.28
4	.35	.41	.31	.21	.12
5	.32	.35	.43	.27	.24
6	.37	.41	.49	.39	.19
7	.34	.34	.44	.44	.11
8	.35	.42	.15	.34	.16
9	.34	.39	.60	.46	.18
10	.36	.37	.36	.42	.10
11	.12	.15	.31	.14	.16
12	.23	.28	.53	.46	.10
13	.24	.21	.20	.20	.12
14	.36	.43	.64	.61	.16
15	.30	.43	.50	.60	.17
16	.41	.40	.63	.52	.16
17	.43	.38	.67	.61	.18
18	.42	.36	.28	.29	.34
19	.39	.42	.72	.65	.14
20	.13	.14	.09	.08	.28
21	.25	.31	.60	.59	.13
22	.27	.30	.20	.14	.13
23	.32	.37	.47	.53	.21
24	.40	.30	.61	.48	.20
25	.16	.32	.18	.27	.31
27	.18	.28	.12	.18	.18
28	-.05	.10	-.06	.02	-.01
29	.26	.27	.20	.16	.11
30	.29	.36	.59	.50	.18
31	.40	.45	.77	.65	.18
32	.42	.42	.70	.58	.19
33	.28	.29	.51	.42	.17
34	.28	.31	.25	.14	.14
35	.27	.27	.23	.23	.32
36	1.00	.57	.47	.36	.36
37	.57	1.00	.44	.39	.25
38	.47	.44	1.00	.59	.18
39	.36	.39	.59	1.00	.21
40	.36	.25	.18	.21	1.00

APPENDIX XV
FREQUENCY OF QF ITEMS

Item	"How often do you drink any alcoholic beverage?"	"How often do you have beer?"	"How often do you have wine?"	"How often do you have liquor?"
Response				
Never or less than once a year	21	61	42	40
At least once a year	27	23	72	46
1-2 times/mo.	47	47	81	94
1-2 times/wk.	89	64	33	46
3-4 times/wk.	36	30	2	4
1-2 times/day	15	7	2	4

Item	"How much beer do you usually have?"	"How much wine do you usually have?"	"How much liquor do you usually have?"
Response			
None	46	25	30
Less than 1	20	31	14
1-2	63	95	91
3-4	50	38	69
5-6	38	31	23
7 or more	14	10	7

APPENDIX XVI

ONE-WAY ANOVAS OF FIRO-B SCALES AND DRINKING VARIABLES BY SEX

<u>QF by Sex</u>				
Source	ss	df	MS	F
Main effects (sex)	9.312	1	9.312	2.715
Explained	9.312	1	9.312	2.715
Residual	771.569	225	3.429	
Total	780.881	226	3.455	

<u>Frequency by Sex</u>				
Source	ss	df	MS	F
Main effects (sex)	2.350	1	2.350	1.151
Explained	2.350	1	2.350	
Residual	469.804	232	2.025	
Total	472.154	233	2.026	

<u>Need Level by Sex</u>				
Source	ss	df	MS	F
Main effects (sex)	58.731	1	58.731	2.009
Explained	58.731	1	58.731	2.009
Residual	6578.678	225	29.239	
Total	6637.409	226	29.369	

<u>Activity Level by Sex</u>				
Source	ss	df	MS	F
Main effects (sex)	0.953	1	0.953	0.043
Explained	0.953	1	0.953	
Residual	4983.610	225	22.149	
Total	4984.564	226	22.056	

<u>Wanted Inclusion by Sex</u>				
Source	ss	df	MS	F
Main effects (sex)	19.743	1	19.743	1.846
Explained	19.743	1	19.743	
Residual	2427.323	227	10.693	
Total	2447.066	228	10.733	

APPENDIX XVI (Conti.)

Wanted Control by Sex

Source	ss	df	MS	F
Main effects (sex)	0.279	1	0.279	0.772
Explained	0.279	1	0.279	
Residual	747.905	227	3.295	
Total	748.183	228	3.282	

Wanted Affection by Sex

Source	ss	df	MS	F
Main effects (sex)	10.671	1	10.671	1.847
Explained	10.671	1	10.671	
Residual	1311.216	227	5.776	
Total	1321.887	228	5.798	

Expressed Inclusion by Sex

Source	ss	df	MS	F
Main effects (sex)	1.776	1	1.776	0.513
Explained	1.776	1	1.776	
Residual	930.831	225	4.137	
Total	932.608	226	4.127	

Expressed Control by Sex

Source	ss	df	MS	F
Main effects (sex)	43.441	1	43.441	7.943
Explained	43.441	1	43.441	
Residual	1241.485	227	5.469	
Total	1284.926	228	5.636	

Expressed Affection by Sex

Source	ss	df	MS	F
Main effects (sex)	17.472	1	17.472	3.970*
Explained	17.472	1	17.472	
Residual	998.982	227	4.401	
Total	1016.454	228	4.458	

*p < .05

APPENDIX XVII

ANOVA TABLES FOR QF BY EXPRESSED AND WANTED CONTROL AND AFFECTION

ANOVA : QF by Wanted and Expressed Control

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	5.118	2	2.559	0.832
Wanted Control	0.008	1	0.008	0.003
Expressed Control	5.059	1	5.059	1.645
wC x eC	0.727	1	0.227	0.074
Explained	5.346	3	1.782	0.579
Residual	246.002	80	3.075	
Total	251.348	83	3.028	

ANOVA: QF by Wanted and Expressed Affection

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	2.077	2	1.039	.330
Wanted Affection	0.829	1	0.829	.263
Expressed Affection	0.040	1	0.040	.013
wA x eA	1.660	1	1.660	.528
Explained	3.378	4	1.246	.396
Residual	207.595	66	3.145	
Total	211.333	69	3.063	

APPENDIX XVIII

ANOVA TABLES FOR DRINKING FREQUENCY BY FIRO-B SCALES

ANOVA: Frequency by Need Level and Activity Level

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	6.059	2	3.030	1.461
Need Level	2.407	1	2.407	1.160
Activity Level	0.475	1	0.475	0.229
Need Level x Activity Level	0.180	1	0.180	0.087
Explained	6.239	3	2.080	1.003
Residual	250.961	121	2.074	
Total	257.200	124	2.074	

ANOVA: Frequency by Expressed and Wanted Control

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	7.917	2	3.958	0.196
Wanted Control	3.912	1	3.912	0.204
Expressed Control	3.464	1	3.464	0.232
wC x eC	0.011	1	0.011	0.947
Explained	7.928	3	2.643	0.350
Residual	190.644	80	2.383	
Total	190.571	83	2.392	

ANOVA: Frequency by Expressed and Wanted Affection

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	6.344	2	3.172	1.441
Wanted Affection	0.000	1	0.000	0.000
Expressed Affection	3.418	1	3.418	1.552
wA x eA	0.610	1	0.610	0.277
Explained	6.954	3	2.318	1.053
Residual	145.331	66	2.202	
Total	152.286	69	2.207	

APPENDIX XIX

ANOVAS: NEGATIVE OUTCOME SCALE BY FIRO-B SCALES

ANOVA: Negative Outcome Scale by Need Level and Activity Level

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	250.069	2	125.034	1.639
Need Level	0.761	1	0.761	0.010
Activity Level	184.425	1	184.425	2.418
Need Level x Activity Level	172.609	1	172.609	2.263
Explained	422.677	3	140.892	1.847
Residual	9001.454	118	76.284	
Total	9424.131	121	77.885	

ANOVA: Negative Outcome Scale by Expressed and Wanted Control

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	269.192	2	134.596	1.196
Wanted Control	102.673	1	102.673	0.913
Expressed Control	148.357	1	148.357	1.319
wC x eC	40.450	1	40.450	0.360
Explained	309.642	3	103.214	0.917
Residual	9001.310	80	112.516	
Total	9310.952	83	112.180	

ANOVA: Negative Outcome Scale by Expressed and Wanted Affection

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Main Effects	38.315	2	19.151	0.856
Wanted Affection	36.596	1	36.596	0.590
Expressed Affection	9.933	1	9.933	0.779
wA x eA	118.471	1	118.471	0.333
Explained	156.786	3	52.262	0.740
Residual	8232.200	66	124.730	
Total	8388.986	69	121.580	

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BIOGRAPHICAL SKETCH

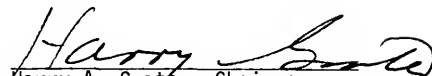
Therese Marie May was born on December 30, 1953, in Oakland, California. The second of six children, she grew up in Atlanta, Ga. She graduated summa cum laude from the University of Georgia in 1975. Her undergraduate major was in psychology.

Not seeing much future in that, she entered graduate school in counseling psychology at the University of Florida in 1975. She did graduate coursework at UF for four years. Among her curricular interests were individual and group psychotherapy and community psychology. Extra-curricular interests included crisis intervention, counselor burn-out, yoga, and running. During this time she taught an undergraduate course in human sexuality.

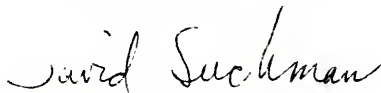
Therese received her M.A. in psychology from the University of Florida in 1978. She interned for one year at the Counseling Center at Southern Illinois University in Carbondale, Illinois.

Presently, Therese is employed as a staff psychologist at the Counseling Center at Old Dominion University in Norfolk, Virginia. She will receive a Ph.D. in psychology in 1981. Her current interests include individual and group psychotherapy, supervision, alcohol education, and running. Her interests are expected to expand considerably when she finishes her dissertation.

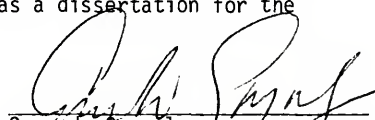
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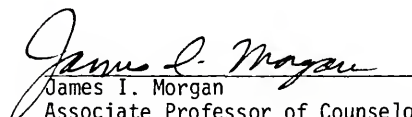
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David I. Suchman, Cochairman
Associate Professor of Psychology


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Gerardo González
Assistant Professor of Counselor
Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


James I. Morgan
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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.


Robert Ziller
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This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate Council and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 1981

Dean for Graduate Studies and Research

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